INTN'L MONTHLY MAGAZINE - BY AND FOR ACTIVE RADIOAMATEURS

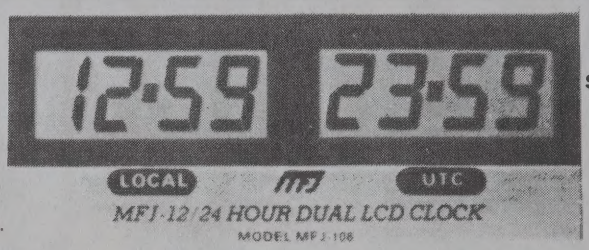
# RADIOSPORTING

AUGUST/SEPTEMBER 1986 No. 21 8609 $2.00

## John Devoldere, ON4UN

# BEST OF MFJ

## MFJ 24 HOUR LCD CLOCKS




**These MFJ 24 hour clocks** make your DXing, contesting, logging and SKEDing easier, more precise.

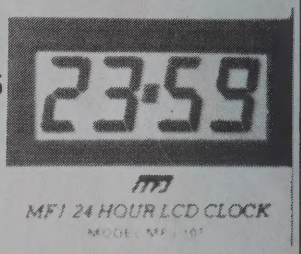
**Read both UTC and local time at a glance with the MFJ-108, $19.95,** dual clock that displays 24 and 12 hour time simultaneously. Or choose the **MFJ-107, $9.95** single clock for 24 hour UTC time.

Both are mounted in a brushed aluminum frame, feature **huge easy-to-see 5/8 inch LCD numerals** and a sloped face that makes reading across-the-shack easy and pleasant.

You can read hour, minute, second, month and day and operate them in an alternating time-date display mode. You can also **synchronize them to WWV** for split-second timing. Both are **quartz controlled** for excellent accuracy.

MFJ-108 **$19.95**

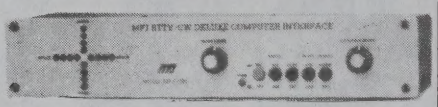
MFJ-107 **$9.95**




They are **battery operated** so you don't have to reset them after a power failure, and battery operation makes them suitable for mobile and portable use. Long life battery included.

MFJ-108 is 4½x1x2 in. MFJ-107 is 2¼x1x2 in.

## RTTY/ASCII/AMTOR/CW COMPUTER INTERFACE MFJ-1229 $179.95



**Everything you need is included for sending and receiving RTTY/ASCII/CW on a Commodore 64 or VIC-20 and your ham rig.** You get MFJ's most advanced computer interface, software on tape and all cables. Just plug in and operate.

**The MFJ-1229 is a general purpose** computer interface that will never be obsolete. An internal DIP switch, TTL and RS-232 ports lets you adapt the MFJ-1229 to nearly any home computer and even operate AMTOR with appropriate software.

**A crosshair "scope"** LED tuning array makes accurate tuning fast, easy and precise.

**You can transmit both narrow (170 Hz) and wide (850 Hz) shift** while the variable shift tuning lets you copy any shift (100-1000 Hz) and any speed (5-100 wpm, 0-300 baud ASCII).

**Automatic threshold correction** and sharp multi-pole active filters give good copy under severe QRM, weak signal and selective fading.

**There's an FM (limiting) mode** for easy trouble-free tuning that's best for general use and an AM (non-limiting) mode that gives superior performance under weak signals and heavy QRM.

**A handy Normal/Reverse switch** eliminates re-tuning while checking for inverted RTTY.

**An extra sharp 800 Hz CW filter** really separates the signals for excellent copy.

**12½ x 12½ x 6 inches.** Uses floating 18 VDC or 110 VAC with MFJ-1312, $9.95.

## MFJ PORTABLE ANTENNA

**MFJ's Portable Antenna** lets you operate 40, 30, 20, 18, 15, 12, 10 meters from apartments, motels, camp sites, vacation spots, any electrically clear location where space for full size antenna is a problem.

**A telescoping whip** (extends 54 in.) is mounted on self-standing 5½ x 6¾ x 2¼ inch Phenolic case. Built-in antenna tuner, field strenght meter. 50 feet coax. Complete multi-band portable antenna system that you can use nearly anywhere. 300 watts PEP.

MFJ-1621 **$79.95**

## MFJ ANTENNA BRIDGE MFJ-204B $79.95

**Now you can quickly optimize your antenna for peak performance with this portable, totally self-contained antenna bridge** that you can take to your antenna site—no other equipment is needed.

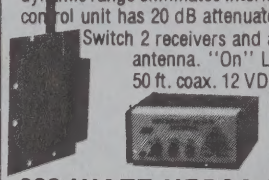
**You can determine if your antenna is too long or too short, measure its resonant frequency and antenna resistance to 500 ohms.** It's the easiest and most convenient way to determine antenna performance available today to anyone. There's nothing else like it and only MFJ has it. Built-in resistance bridge, null meter and tunable oscillator-driver (1.8-30 MHz). Uses 9 V battery. 4 x 2 x 2 inches.

## REMOTE ACTIVE ANTENNA

**The authoritative "World Radio TV Handbook" rates the MFJ-1024** as "a first-rate easy-to-operate active antenna ... Quiet, with excellent dynamic range and good gain ... Very low noise factor ... Broad frequency coverage ... the MFJ-1024 is an excellent choice in an active antenna"

**54 inch remote active antenna** mounts outdoor away from electrical noise for maximum signal and minimum noise pickup. Often outperforms long-wire hundreds of feet long. Mount anywhere-atop houses, buildings, balconies, apartments, ships.

**Use with any radio** to receive strong clear signals from all over the world. 50 KHz to 30 MHz. High dynamic range eliminates intermodulation. Inside control unit has 20 dB attenuator, gain control. Switch 2 receivers and auxiliary or active antenna. "On" LED. 6 x 2 x 5 in. 50 ft. coax. 12 VDC or 110 VAC with MFJ-1312, $9.95.



MFJ-1024 **$129.95**

## 200 WATT VERSA TUNER

MFJ-901B **$59.95**

**MFJ's smallest 200 watt Versa Tuner** matches coax, random wires and balanced lines from 1.8 thru 30 MHz. Works with all solid state and tube rigs. Very popular for use between transceiver and final amplifier. Efficient air-wound inductor gives more watts out. 4:1 balun, 5x2x6 in.

## ROLLER INDUCTOR TUNER

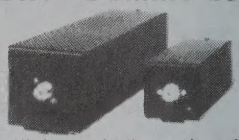
MFJ-989 **$329.95**

**Meet the "Versa Tuner V", the compact roller inductor tuner** that lets you run up to 3 KW PEP and match everthing from 1.8 to 30 MHz.

**Designed to match the new smaller rigs,** the MFJ-989 is the best roller inductor tuner produced by MFJ. Our roller inductor tuner features a 3-digit turn counter plus a spinner knob for precise inductance control for maximum SWR reduction. Just take a look at all these other great features! **Built-in 300 watt, 50 ohm dummy load, built-in 4:1 balun and a built-in lighted meter** that reads SWR and forward and reflected power in 2 ranges (200 and 2000 watts). Accuracy ±10% full scale. Meter light requires 12 VDC. 6 position antenna switch. 10¾ x 4½ x 15 inches.

## MFJ "DRY" DUMMY LOADS

MFJ-262 **$64.95**

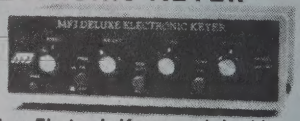


MFJ-260 **$26.95**

**MFJ's "Dry" dummy loads are air cooled—no messy oil.** Just right for tests and fast tune up. Non-inductive 50 ohm resistor in aluminum housing with SO-239. Full load to 30 seconds, de-rating curve to 5 minutes. **MFJ-260 (300 watt)**, SWR 1.1:1 to 30 MHz, 1.5:1, 30-160 MHz, 2½x2½x7 in. **MFJ-262 (1 KW)**, SWR 1.5:1 to 30 MHz, 3x3x13 inches.

## MFJ ELECTRONIC KEYER

MFJ-407 **$69.95**



**MFJ-407 Deluxe Electronic Keyer** sends iambic, automatic, semi-auto or manual. Use squeeze, single lever or straight key. Plus/minus keying. 8 to 50 WPM. Speed, weight, tone, volume controls. On/Off, Tune, Semi-auto switches. Speaker. RF proof. 7 x 2 x 6 inches. Uses 9 V battery, 6-9 VDC or 110 VAC with AC adapter, MFJ-1305, $9.95.

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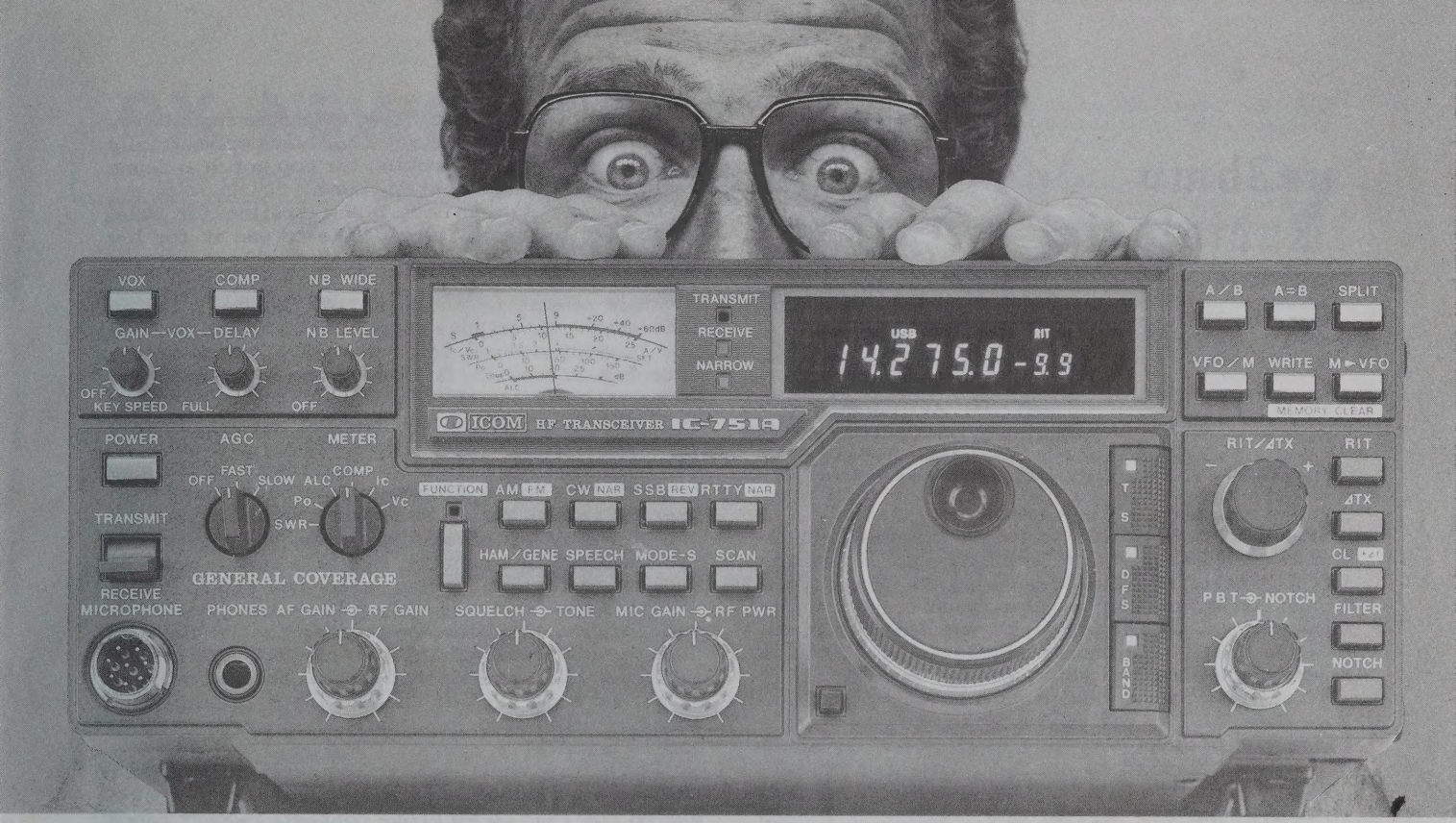



# ICOM IC-751A

## CAN YOU HANDLE THIS MUCH TRANSCEIVER?

- **All HF Band Transceiver/ General Coverage Receiver**
- **New Design**
- **100% Duty Cycle Transmitter**
- **105dB Dynamic Range**
- **All Modes Built-In USB, LSB, AM, FM, CW, RTTY**
- **12 Volt Operation**

**The new IC-751A** top-of-the-line HF base station transceiver is designed for the ham operator who demands high performance. Whether contesting or QSO'ing for pleasure, the 100 watt IC-751A incorporates the best features of the IC-751, plus brings you to the forefront with the following most-asked for additions.

**More CW Control.** For the CW enthusiast, the new IC-751A includes an electronic keyer unit, QSK rated at up to 40WPM, standard FL-32A 9MHz/ 500Hz CW filter and CW sidetone to monitor your code in RX or TX modes... great for practice!

**All Amateur Band Coverage.** Plus general coverage reception from 100kHz to 30MHz. May be easily modified for MARS operation.

**Improved Smooth Tuning.** The IC-751A features a newly designed tuning knob for velvet smooth tuning.

**Added LED Annunciator.** For easily identifying if you're using the tuning speed, dial, or band switching functions.

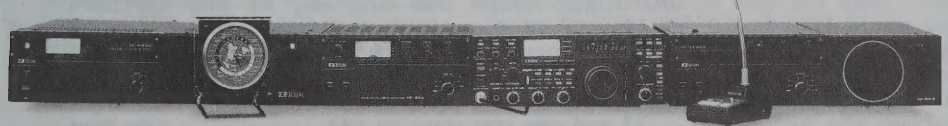
**32 Memories.** Mode and frequency may be stored in any of 32 memories...all the memory capability that you'll ever need.

**More Stable.** Even in the receive mode, the IC-751A has a sophisticated thermal sensor to monitor the internal temperature. The sensor automatically activates the cooling fan which gives maximum stability ...critical for contesting.

**Newly Designed Features.** The IC-751A boasts a number of newly designed features for better performance ...new 9MHz notch filter to drastically reduce QRM, new AGC system, new compressor for better audio and a new AF gain control system to improve control of the CW sidetone volume.

**Options Available.** Options for the IC-751A include the IC-PS30 external AC system power supply, IC-PS35 internal AC power supply, IC-AT500 antenna tuner, IC-EX309 microprocessor interface connector, SM-8 or SM-10 desk mics, IC-2KL linear amplifier, RC-10 remote controller, SP-7 or IC-SP3 external speakers, IC-EX310 voice synthesizer, CR-64 high stability 30.72MHz crystal and GC-5 world clock.

**Optional Filters.** FL-52A CW 455kHz at 500Hz, FL-53A CW-N 455kHz at 250Hz, FL-63A CW-N 9.0106MHz at 250Hz, and FL-33 AM 9.010MHz at 6000Hz filter.



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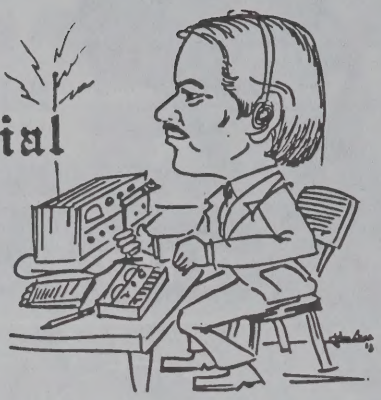
ICOM America, Inc., 2380-116th Ave NE, Bellevue, WA 98004 / 3150 Premier Drive, Suite 126, Irving, TX 75063

All stated specifications are approximate and subject to change without notice or obligation. All ICOM radios significantly exceed FCC regulations limiting spurious emissions. 751A486

# ve3bmv Radiotorial



Here we are with our "transition" issue. It bears the label of being August/September while it actually is the September issue. Because we are skipping the August issue, we will add one issue to everyone's subscription. This is the last issue done in Canada. We hope to have all the arrangements completed in time for the next one which will be "made in USA."

Finally, I had a chance to see our new QTH in Montville, NJ. I am not sure about the tower situation there, but it looks very nice for "regular" living. We are looking forward to our new place and friends. "All" that we have to do now is move our belongings including the Big Bertha. One realizes how much junk has accumulated over the years, only when the time comes to pack. The ham radio stuff sure makes a big pile.

My previous move from OK land was relatively simple - a 25 kilos suitcase, everything else had to be left behind. Three years of home brewing the radio equipment and other goodies remain just memories. Now the move is a lot more complicated but pleasant, we can take whatever we want with us! God bless America!

As we are finding out, packing can take a lot longer than one estimates. Those who moved, know it. Fortunately our timing is working out well. We are planning to move the stuff before the 20th of August even though we have until the end of August to vacate our old place. From now on please use our new address in New Jersey. For the time being we are keeping the old PO Box in Don Mills, ON and will have the mail forwarded to our NJ address. Hopefully things should not get lost, just delayed by a week or two.

Our move should help the RADIOSPORTING magazine. There will be more room for office, more time and soon we hope to have a laser printer. This issue might look a bit raw. Please bare with us. Your patience and understanding during this transition period is very much appreciated.

This closes the chapter on the VE3BMV operation. I will keep the callsign for a while and might come back for an occasional contest operation during the CQ contests. I enjoyed operating from Canada. It was a period of growing up, discovering a few things and setting a few records. During the operation from a city size lot in the middle of Scarborough, about ten world records were broken in the CQ WW and WPX contests and just about all the Canadian monoband records are still held by VE3BMV.

Now new challenges are ahead. I would like to get back to work on the propagation theory, designing a new generation of antennas, towers and of course testing it all in a new competition in the states. I should have more time to write about the RAZOR beams and other "secrets" from my contesting kitchen. There are plans to make some hardware commercially available. If you are looking for top notch antenna designs and hardware, stay tuned.

If anyone has an AIRSTREAM trailer for sale, please let me know. I would like to use it for low band contest operation and as a portable convention vehicle.

While operating monoband 160 meters, I had an interesting experience during the CQ WPX CW contest. The TS-930S seemed too quiet with the Beverage antennas on receive. (I like hearing some band noise on my receiver.) In the "heat" of contest, I decided to dust off my old Drake R4B and put it to work. What a difference! I was able to hear the noise on the band plus some stations that the TS-930S alone couldn't. The extra preamp on the 930S would have been necessary. This just proves the point that you can never have enough antennas, receivers and transmitters in a contest. My R4B is heavily modified and is performing better than the stock R4B. I modified the front end and replaced the preselector tube with a 6EH7. In some respects the Kenwood "wonder rig" was great, but the old stuff still performs well. It seems that perhaps the best solution is to add some kind of tunable input preamplifier ahead of newer rigs, especially when working 160, 80 and 10 m bands.

I take back what I said in the earlier issue about using the horizontally polarized delta loop on 80 m during the 1985 CQ WW Phone contest. I wasn't happy about spending too much time in the pileups when trying to work the DX stations. I felt that the vertically polarized loop would work much better. Then came the high claimed scores and I almost fell off my chair. My score could be the new 80 meter world record, beating a fellow countryman, VE2HQ, who was using 3 element full size beam! Knowing that VE2HQ was around made me run like a rabbit. The first hour netted 240 contacts, because of that "no good" broad, horizontal loop, I guess. I might have missed a few juicy multipliers, but it looks like I made up for it by working a lot more of the regular stations. In this competition, perhaps, the bigger factor was the operator skill over the hardware. It sure would have helped to have a beam or a phased vertical array here, but I shouldn't complain. This is what makes contesting so interesting and challenging. The whole picture could be different next year or the propagation can play games with us depressing or boosting the scores. As the competition intensifies, it is harder and harder to keep the old records stand. More people participate, equipment gets better, bigger antennas go up (and down) all the time.

I used to analyze last year's contest results and make projections as to what my score should be this year. Then came the contest. The bands were a wipe-out and I was frustrated that I was way behind the projected performance. Contesting is supposed to be fun, therefor, I gave up the planning phase. Now I take the approach that I will go in, try to do my best and see what happens. If I do not set my expectations high, I might get pleasantly surprised. If things did not work out, well no big deal, I did not expect to burn a hole in the ionosphere anyway.

In the heat of finishing the last issue, we left out the credits for two articles: Working FO0XX by OH2BH and OH2BN was courtesy of the Northern California DX Foundation Bulletin; and ARRL DX CW Contest Operating by KM3T was courtesy of the Frankford Radio Club Bulletin. Sorry about the omission.

73 and see you soon as /W2 de Yuri

# DX NEWS


## ART HUBERT. N2AU

436 N. Geneva Street, Ithaca, NY 14850


The DX news from around the world as exchanged on the IRSA net and from other sources: KE2C, KA2AJT, G3FXB, K6IR, W3AZD, LU8DPM, W4QM, INC Spots, WA9BXB, W4FRU, K3UOC/YV4, WNYDXA, Les Nouvelles DX, HA5KDX, 4X6TT, N6AHV, Inside DX, VP2ML, DX BULLETIN, QRZ DX, and THE W6GO/K6HHD QSL list. The IRSA net operates on Sundays around 14.200 MHz, starting at 2000Z and 3.830 (Mondays and Fridays at 0200 Z).

If you are like me, August has arrived and I still have not started all my antenna repairs and changes to improve the signal for the upcoming DX contests. August provides two contests for you to get in there and see how the signal compares with the other DXers or Contesters. The WAE (Worked All Europe) and the All-Asian, both of these affairs are on CW. The WAE will provide those runs and the AA DX test will see how well you can crack those pileups when one of those rare Asian stations pops-up. I have been doing a lot of travelling so far this year and have been having a lot of eye-ball QSOs with many of you who I hear or compete with in the pileups. When you start chatting with DXers and Contesters like N2AA, W2VJN, K2VV, K4MQG, W4FRU, and others, it is sometimes harder to say good-bye than turning off the rig when a rare one is on. Now lets see what's happening in the world of DX.

In a letter from LU8DPM, Mario, states that he handles the QSL chores for CE8ABF, CE8EMM, CE7DOM,CE6EDZ, CE6CGU, CE6GEO, CE5BTS, CE5SG, CE4GTA, CE3FTV, CE3DNP, CE3EEO, CE3FIP, CE1FGT, 3G3C, 3G3E, C3ØLCK, ZP5JCY, ZP5LHY, ZP5JCZ, ZPØJCY, LU8FEU, and LU2E. Mario also states that he is on 160 meters nightly around 1.842 MHz at 0200-0500Z, often in the company of CE8ABF, ZP5JCY, CX2DC, and VP8ALJ.

VE7EXPO is the special events station at EXPO 86 in Vancouver, B.C. The Station will be on the air from 10 a.m. to 10 p.m. Pacific time. They will be active on SSB, CW, RTTY, Packet, ATV, and SSTV on 1.8 MHz through 1.2 GHz. They will be operational until October 13, 1986. QSL via VE7EMD or VE7 Bureau.

PAØGMM can provide QSLs for PAØGMM/OHØ (70), FOØGMM, 3D2GM, KX6ZX, T2GMM, PAØGMM/HBØ, C31DY, ZK1AXE, A35BG, C21NI, T3ØBO, ZC4ZN, YA1DX, ZK2BM, PAØGMM/KH8, YJ8VB, T32AE, and PAØGMM/5B4. (Tnx INC Spots)

W4FRU, John, writes to say that he handles the cards for the past and present operations of 5T5ZZ, 3X1Z, VK4NIC/3X, ZK7HN, A4XYS, FB8WJ, 5NØDOG, ZD8HH (who is not very active), ZD9BV, and ZD9YL. John also states that by the time you read this ZD9YL should be returning to England to attend school. He is also having cards printed up for A61AA and will handle the QSL chores when Ahmed becomes active. John has been appointed as DXAC chairman when K6SSJ resigned.

In the 1986 CQ WPX CW Test K3UOC/YV4 operated as 4M4A. Mike goes on to state that he will use the 4M4A call for this years CQ WW Contests, as well as in the ARRL Tests and WPX Tests in the Spring of 1987. If you need a 4M4 QSL, QSL via either Mike Manafo, 2419 Willow St., Wesleyville, PA. 16510 or Mike Manafo, Colegio Internacional de Carabobo, Apartado 103, Valencia, Venezuela.

VE3HGN was talking with A71BK and Mohammed told him that an operation from 4W was scheduled but never happened because a second operator was unable to make the trip. Mohammed said that they had permission and have rescheduled the DXpedition to November or December. Hmmm WFWL. (Tnx WNYDXA Report).

KM1R and OK1AWZ were unable to obtain operating permission from the XV authorities. In fact, they stated that it is impossible to bring radio equipment into the Country. So it looks like any activity in the future is bleak.

Several TR8's activated 3CØA during late June and early July. This one caused some large pileups, I believe that the last operation from here was around 1980 by the Hensons. They were active on all bands CW-SSB-RTTY. If you worked them QSL via TRØA, P.O. Box 1826, Libreville, Gabon West Africa.

There has been a station floating around 20 meters on SSB signing ZA1C. This one has even checked into several DX nets. This one is either for real or this "Slim" is a brazen soul.

LA9PX will operate from the Donna Island in the Norwegian Sea off the west coast of Norway around the third week of August. For those of you who chase IOTA this one counts as EU-62.

FD1HVQ will operate from the Isle of Batz from August 8 to 16, using the callsign of FV6NDX.

French Polynesia stations will start issuing the FO4 and FO5 callsigns in July, with foreign operators probably signing FOØ prefixes.

KX6PO, opr. Ian, is active from Majuro Island in the Marshalls. Ian can be found on 20 meter SSB near 14200 at 1230Z, when he's not flying passengers on the Marshall Islands Airline. Some of you might remember Ian when he signed VK4NIC/3X. QSL via CBA.

ZS6USA (N4NW) has left South Africa and by the time you read this should be on his way to Zaire where he expects to receive 9Q5 operating permission.

Amir, 4X6TT, operated as 4X8T during the Phone All-Asian contest in June. QSL this call via Amir's CBA. He amassed over 2400 QSOs in 90 plus countries in a single band effort on 20 meters. With a little more experience under his belt, Amir will become one of the big contesters from the Middle-East. He will be touring the Mediterranean area in July and early August from 5B4, SV5, SV9, and SVØ.

If you have a new 1986 Callbook Supplement look under the USSR listings, complete addresses are given. I wonder if it's possible to QSL direct now or a mistake was made by giving a complete address?

Roy, K4AXQ, will be working in Guyana (8R1) for the next several years and hopes to be active from there with a big signal.

The Hungarian club Stations HG1S, HG1Z, HG5A, HG6N, HG6V, HG7B, HG8U, and HG9R received permission to operate on 160 meters starting July 1, 1986. They will operate CW only from 1.830 to 2.000 MHz using a power output of 10 watts.

As of press time no decision still has been made on the Mount Athos operation of Frank, DL7FT, in April. According to Don Search, W3AZD, it might take some time to finalize a decision on this one.

For those of you who still need a CEØAA card, send an SASE with your QSL to N6AHV and Tex should be able to help you out. Make sure you include enough return postage. Tex and Mickey, CE3ESS, sked several times a week and are trying to complete the QSling on this one. With all the problems they have been having I am not sure why they just did not send a copy of the logs to a QSL manager stateside.

TZ6FE has now left Mali and should be operational from Peru by the time you read this.

In the quest for WAZ-86 the first 5 recipients were: N4JF, W8AH, K2TQC, LZ1KA, and K9RHY.

Ex AH2BE who signed 8P9GI in late June will be assigned to Korea where he will sign an HL9 call. QSL via KA6V.

### THE VQ9QM STORY

I arrived at Diego Garcia on the 20th of December, 1985. Due to the holiday season and a lot of repair work on the other vessels of our fleet, ham radio had to take a back seat for awhile. Obtaining a license was simplicity itself. One merely has to show his license and pick out an unassigned call.

On gaining access to the club station, VQ9CI, I found it in a bad state of disrepair. The Icom 745 would not work on CW, the 80/40 meter dipoles were bad, the tri-bander was reluctant to rotate and the shack itself was a mess. The first order of business was to get the Icom 745 working on CW. W2FC was a great help as we were in TELEX communication via satellite and he had sent me out a service manual and a CW filter for the unit. I was able to get it jury-rigged and operational on CW though everyone will agree, it is not a CW signal to be proud of. I also reworked the tri-bander/rotator and erected a new 40 meter dipole and an 80 meter sloper. Operating time is limited. I must be on board from 08 to 1700 local each day and then must catch the last launch back to the ship (anchored in the lagoon) at 11 p.m. (1700Z). We go out to sea 2-3 times a month for a few days and this invariable is over the weekend so those who work a steady job have little chance to work me. I was able to get permission to stay overnight and at this time, plan on Wednesday and Saturday all night sessions whenever the ship is at anchor.

The Icom receiver is completely

swamped due to the local 250 watt AM station located just a few hundred feet away. Plus, at times, the local line noise is S9 so it makes for very tough operating on 80 and 40 meters. Taking the RR3 (Drake) shipboard receiver ashore helps out tremendously. To date I have made approximately 4000 QSOs and at the last count have made contacts with 247 different FOC members. Only have made 2 fivers so far (PY1ZAE and 5H3ZO) but do have several four banders and have even worked a few of the gang on 10 and 18 MHz. Conditions have been poor, in general, and W6/7 have been almost totally unheard. At any rate, it has been interesting to operate from here and I must apologize to all who called and were not heard due to a lousy receiver, bad line noise, or an inept operator. I am due to be relieved mid April for vacation. If I do come back here, it will be with a good CW transceiver and an antenna tuner. I have already ordered out some coax for other antenna makings. One cannot fault the basic set up. To have a tri-bander at 100 feet and the tower itself to secure the LF antennas is absolutely marvelous. I got numerous S8/9 reports on 80 meters from the U.S.A. east coast gang even though I had trouble hearing them through the noise.

VQ9RB is presently active on CW. VQ9LD is partially active but he is operating from a ship anchored in the lagoon. VQ9SK is active on Phone so one does not have the station to himself and must share.

Dale, W4QM

(Tnx G3FXB & FOC Newsletter)

In a letter from W4QM (Dale) he stated that he had about 1000 QSLs waiting for him to answer when he returned stateside in May. He also stated that he would probably be going back to VQ9 in September. He will be taking a better CW rig and several thousand feet of wire to help promote a better low band signal. He hopes also to be able to operate on 160 on his next trip. As most of you know, Dale, has been an avid DXer and CW operator for many years, and has put a few rare ones in the logbooks of many DXers. Because of his dedication to DXing, Dale was elected to the CQ DX Hall of Fame on May 23, 1970.

Avid DXer Aki, JA5DQH, collects Radio amateur license plates and would like to obtain one from each U.S. State. So if yours is not promised send it to JA5DQH's CBA.

Roger Mace, W6RW, became a silent key on May 15. Roger was an avid DXer and liked to chase new ones on his favorite band 160.

A new Chinese station became operational on June 22, BY4RB with the help of several JA operations made their appearance on 14.180 and 50.110. QSL via P.O. Box 413, Zhen-Jiang, PRC.

NJ7D is now active from Minami Torishima for the next year singing 7J1ACH and if you work him QSL via NG7X.

The Redwood Empire DX Association recently elected a new slate of officers for the 1986-7 season. They are:

President- Doug Bender, WA0JRB
Vice Pres- Bill Minor, WG6H
Sec./Tres- Chod Harris, VP2ML
Board member- Hank Davis, W6DTV
Board member- Bruce Bulter, W6OSP

For more information about the club write to REDXA, P.O. Box 4881, Santa Rosa, CA 95402.

73 and Good DXing, Art, N2AU

More on PRIBILOFS:

Dear ARRL Board Member:

The Alaska DX Association requested in 1983 that the ARRL add the Pribilof Islands to the DXCC Countries List by virtue of point 2 of the Countries List Criteria. After two years the DX Advisory Committee voted for an acceptance of these islands as a new country. Unfortunately, the Awards Committee at Headquarters was persuaded to deny this new country. On the surface nothing seemed amiss; in actuality the normal country determination process was not fulfilled.

During the last three years the ADXA has discovered that the Pribilofs application has been repeatedly mishandled by certain ARRL personnel. Specifically, the ADXA makes the following allegations:

First, the actions of the HQ DXAC liaison failed to follow the country determination process as established by the Board of Directors:

1. The liaison failed to forward pertinent correspondence to the DXAC within the allotted time.

2. The liaison released DXAC information to DX newsletters without prior approval of the DXAC chairman as is required.

3. In the case of one DXAC vote, the results were not distributed to the individual DXAC members as is normal, hence, there was no way to insure that the tally was indeed correct.

Second, certain ARRL representatives provided inaccurate or misleading information:

1. In 1983 the DXCC administrator presented ADXA with Country Criteria requirements which were later shown to be untrue.

2. In the fall of 1983 the DXCC administrator repeatedly told amateurs that HQ had not received any paperwork about the Pribilofs, when in fact, HQ had possessed the material for some time.

3. The Communications Manager told us that no secret guidelines were in use by DXAC. Yet some DXAC members were indeed using a set of guidelines which the ARRL has refused to release to regular ARRL members. In addition, the guidelines have never been approved by either the BoD or the Awards Committee, and worse yet, the guidelines are incorrect concerning point 2 of the Countries List Criteria.

4. Repeated leaks from a "source at Headquarters" appeared in the weekly The DX Bulletin. Often these leaks were incorrect, and always in a way which was detrimental to the Pribilofs' case.

Third, a few of the ARRL personnel involved with the country determination process were less than objective in their consideration:

1. The DXCC administrator repeatedly spouted diatribes against the Pribilofs even prior to receiving the Pribilofs' evidence.

2. Some DXAC members apparently voted dissatisfaction with points of the Country Criteria, rather than to simply vote whether the Pribilofs meet the existing criteria. (i.e., "Technically the Pribilofs count, but I'm still not going to vote for it!") This is a direct attempt to circumvent the power of the Board in deciding proper DXCC country requirements.

3. The Communications Manager was tasked by the DXAC to investigate prior country determinations. Not only did this take an inordinate amount of time, but the resulting "staff memorandum" was filled with faulty logic and avoided evidence which happened to be contrary to the author's presupposed opinion. The end result was a biased attach on the Pribilofs' case rather than an impartial investigation.

Finally, we note the most appalling transgression. HQ apparently decided in 1984 that the Pribilofs would not count as a new DXCC country. This decision was contrary to proper procedure and was made PRIOR to the DXAC determination. This "leapfrogging" of steps in the Board-designed country determination process is not only an effrontery to the Board, but also to ARRL members and DXer's worldwide.

The ADXA can substantiate these disturbing allegations, and should the Board require any specifics, we will provide them. It is clear to us that the Pribilofs' effort did not receive a "fair shake," and other groups' recent country requests may have also been mishandled or manipulated. In the best interests of the ARRL and DXCC, we feel that the Board of Directors should take it upon themselves to demonstrate:

1. The Board will not tolerate tomfoolery and petty politics in membership matters.

2. The Board will guarantee that relations between the League and its members will be done honestly and with open-mindedness.

3. The Board retains an intense interest in preserving the integrity of DXCC and the art of DXing.

To accomplish these ends, the ADXA does request that the Board of Directors take the following necessary steps:

1. Instruct ARRL personnel not to prejudge any valid country application. Furthermore, ARRL personnel should refrain from campaigning for or against a country, but seek to present a neutral position so that future determinations will be untainted.

2. Order all personnel to strictly follow the country determining process established by the Board and outlined in QST.

3. Instruct DXAC and Awards Committee members that country determinations are not to effect a rules change, rather they are merely examinations of whether an area meets existing criteria.

4. Follow the recommendation of your DX Advisory Committee and immediately and retroactively admit the Pribilof Islands as a new country on the ARRL DXCC list.

We hope that the Board will quickly act on these requests and put an end to a potentially divisive issue. Better a few bruised egos at Headquarters than a general uproar among the members.

Respectfully submitted,

Dan Robbins, KL7Y
President, ADXA

(Amen! That goes for the Contest Advisory Committee and Board of Directors "communications" too.)

160 m Bulletin

Founder -
Stew Perry, W1BB

# Top Band News Americas

Dennis Peterson, N7CKD

4248 A Street SE, Sp. #609, Auburn, WA 98002 Tel. (206) 833-7243

## Let's Activate Some Pacific DX!

In my first column of RADIOSPORTING magazine, I included a list of countries by continents. To refresh your memory a bit, the 6 continents are as follows with the total number of countries within the boundary limits indicated in parenthesis:

1. AFRICA (74)
2. ASIA (54)
3. EUROPE (63)
4. NORTH AMERICA (48)
5. SOUTH AMERICA (28)
   ANTARCTICA (2)
6. OCEANIA (48)

With the latter one, OCEANIA; I would like to suggest the following: if each one of us were to send a post card, letter or the next time we QSO with a DX station in this region and invite him to come up on 160, we could all increase our country count considerably. Keep in mind, that one must know the best operating times for Pacific DX stations to be able to work East Coast, Midwest, Mountain and West Coast stations effectively.

We should all be able to put forth an extra bit of effort in trying to get some of these potential top-band operators on 160. I tried this system once by myself, but one person can't do it all. I'm confident that with several operators doing their part, we can pull some of these Pacific operators together and make a joint venture out of this program. If any of you Pacific operators are subscribers to RADIOSPORTING magazine and read this column, then you too can help us to spread the word and try your luck at operating on this band. You say you don't know what kind of antenna to put up that would be effective for you on this band? If you want to send me an SASE to cover my postage costs etc., I'll be glad to send you some photocopies of material that I already have about antennas and the tuning networks used.

Having recently gone back through my 160 DXCC records, I find that I could use 26 of these countries towards getting my DXCC on 160. I still need 21 countries, as I have 79 confirmed to date. Think about it and give it a try, it certainly can't hurt anything and you could make a new friend. I would also like to ask for your help to update my 160 DXCC list. I have information and a complete listing of operators who have received the coveted award of 160 DXCC from #1 through 108. If anyone can help me fill in the voids to date, I would be very grateful. I also need this information to update my manuscript which I hope to eventually get published. I haven't been able to get the help from the ARRL that I have sought through correspondence in regards to this, nor have I been able to get any assistance from any of the directors. If someone is able to supply me with this information, or as to how I may obtain it myself, please let me know.

## Grounds & Ground Screens

If some of you are still a bit puzzled over which type of ground system should be employed at your location, you may want to read the article "GROUND SCREEN"--an alternative to a buried radial system by WBØJGP, Robert Sherwood; Denver, Co. Ham Radio Magazine May 1977 pp.22-25. Also, another article with some interesting findings and data is ZOUNDS! GROUNDS! by Joseph Carr, K4IPV, Arlington, VA. 73 Magazine April 1985 pp.30-34. Still another source of excellent research and informative material on ground radial systems is the article "RECENT DEVELOPMENTS IN RADIAL GROUND SYSTEMS FOR AM BROADCASTING presented by Archibald C. Doty, Jr. at the 1984 National Association of Broadcasters - Broadcast Engineering Conference in Las Vegas, Nevada, April 28, 1984.

There are many others which could enlighten your knowledge, but these three have given me lot of good ideas. With this in mind, happy reading; and I hope this may help resolve some of your misconceptions.

## TOP-BAND ACTIVITY

This listing is going to inform top banders about some of the DX stations available in this upcoming 1986-87 DX season. I hope to be able to run this column in the same manner as I did with the ole' West Coast 160 Bulletin. In order to make this listing useful to everyone, I am going to need help and cooperation with it.

I would like to get a Who's Who on 160 started once again just as we had in the West Coast 160 Bulletin. This first listing is going to be simply a call sign listing only with no mention of operating frequency. Also, the calls are not in alphabetical order. This is only to give those just getting started on 160 meters an idea of what is available.

UA3QPV, UY5YY, UV6HEK, UT5PI, UB4MPE, UW3QR, UZ3TWY, UAØZDD, UO5GQ, UP2KAG, RB5EV, UG6GAW, UA1OT, SV1PL, SV2QI, SV1NA/SV9, SV9ABS, SV9ABO, SVØAA, G3SZA, GW3YDX, GU3FHN, G3YRO, G4GOF, T77C, 4U1ITU, IKØBYO, ISØPLQ, DL1BU, DJ8WL, DJ1SU, DL3AM, ZB2RAF, ZB2FK, OZ1LO, LA2GV, EA3VY, HB9AMO, LZ2CJ, D44BC, CT4BD, CT2CB, HB9AHL, PA3AAV, PAØHIP, F8IH/EA, OL9COB, OK3CQR, OK1DWJ, T77V, YU1EXY, HV2CO, JWØA, UD6DKW, UF6FBE, UA9OLO, UZ9FWR, 4X4NJ, 4X4VE, VU2GDG, HL9CW, VS6DO, BVØ??, 5N8BAV, HZ1HZ, EA8QO, 5H3BH, SMØDJZ, SM7BIC, SM6EHY, HL9AA, HL9KW, 9M2AX, A71AD, ZC4ESB, ZC4MR, 5L2CJ, J5WAD, OH2BEN/C5, VK6HD, KX6DS, KH6CC, ZM8OY, H44IA, P29PR, ZL2BT, Y34K, CO2PY, FM5WD, AH8A, J37AE, 9H1EP, OY7ML, ZD7BW, HKØHEU, FO8FO, ZK2IK, HH7PV, T32AF, CP8HD, PJ2HB, PZ1AC, TG9NX, 6Y5IC, HP3FL, KV4FZ, CX8DT, TI1C, HC1BI, J34LTA, CO7RG, A35EA, YV1OB, LU9EIE, PY1ARS, T3ØAT, KL7Y, KL7GKY, V2A, CE8ABF, VP9AD, VP2VA, YBØARA, JA7TQK, JA3ONQ, XE1HHA, 9Y4NP, 8R1Z, VP2EA, TR8JLD, ZS5LB, ZS6BXB, ZS5BK, ZS5MY, ZS4PB, ZS6DW, VK9NS, ZL3GQ.

The above listing is by no means a complete listing. If such a listing were to be reproduced, it would probably take several pages. Hopefully we may have given the newcomer to top-band a little insight as to what he can expect to hear. The secret to successful 160 meter operating, (and it really isn't a secret) is in knowing when and where to listen as well as doing nothing more than LISTEN, LISTEN, LISTEN.

This band unlike any other band requires perseverance, patience and most of all complete dedication. This is one band one doesn't learn overnight nor does he learn in even a decade. Just when he thinks he has most of the answers, things seem to change abruptly. You have to learn to get the feel of the operating conditions and then play the odds against all evils. Sometimes you win and sometimes you loose. THE CHALLENGES ARE MOST INTRIGUING AND EXCITING.

## ZONES COMPETITION

In the June issue of the magazine, there was a brief reference made to the 160 m zone competition. Who is going to be the first to complete another one of those so many CHALLENGES here on top-band; WAZ (worked all zones)? According to the LZ2CJ's listing, K5UR has 35 worked and ? confirmed, DJ8WL has 32 worked and 32 confirmed, LZ2CJ has 32 worked and 30 confirmed and N7CKD was shown as having 30 worked and ? confirmed. N7CKD should be changed to 28 worked and 26 confirmed. If any of you can add to this unique list and would like to know where everyone else stands, simply submit your list of worked and confirmed zones to me or to LZ2CJ. You might even want to mention which ones you need.

Well, I guess I better not press my luck at sitting in front of the computer for very long as I'm supposed to be taking it easy and not overdoing myself after a recent operation; and I think I've already gone beyond my limits as I am now

starting to feel a little nauseated and very tight knotting in the mid section. REMEMBER: DON'T WAIT UNTIL THE LAST MINUTE TO TRY AND COMPLETE IN AN HOUR WHAT NORMALLY WOULD TAKE A DAY AND A HALF OR EVEN SEVERAL WEEKS. What the heck, who are we trying to kid "Isn't that the normal Ham way, everything gets done at the last instance and in the worst of weather conditions". Hi

## 10th Anniversary of 160 Meter DXCC

This year, 1986, marks the 10th anniversary of our TOP-BAND DXCC. The number 1 certificate was issued to W1BB, Stew Perry on November 1'st, 1976. Since that time and when so many thought it virtually impossible to make DXCC on 160 meters. Determination, drive, accepting a new challenge proved to be well worth the efforts of those who conquered the newly created award. When I first began my attempt at trying to reach that goal, there were only 24 operators who had reached the 160 DXCC list. The last one at that time, which was November 2'nd, 1982 was G3RPB, Keith Spicer. Well, four years have gone by since I began the pursuit towards 160/DXCC along with many others.

During those four years, we have educated ourselves and discovered that some of the old tales and ideas are no longer correct. We have accepted a great new challenge in designing different and shortened verticals for this popular band. We have learned that there are even different ways for using various types of ground screens and elevated ground systems. In doing so, many have found that working DX was no longer impossible from a small city lot. "Where there is a WILL, THERE IS A WAY".

During those first 6 years of the award's existence, only 24 operators achieved the 100 country mark. During the next 4 years we have seen a dramatic increase of 121 operators reaching their goal. 1985 seemed to be the most fruitful of all since propagation that year was at an all time high. 47 operators reached DXCC and many of them had been trying to reach that magic 100 mark for several years. I believe there were several occasions where between 50 and 100 countries were worked in a few contest weekends. Yours truly, N7CKD is still struggling at 80. But, the point I want to make again is that I'm doing it all from a mobile home park on a 55' x 90' lot space; an 80' short vertical fed against a 55'square 1" mesh chicken-wire ground screen. If I can do this well with these type of restrictions, just think of what you can do if you wanted to apply a little ingenuity and experiment with some of those ideas you've been tossing around for the past few months. Nothing is so IMPOSSIBLE that without a little bit of effort cannot be ACHIEVED.

The following listing of successful 160 meter DXCC operators has been compiled. Keep in mind, that some may not necessarily be in numerical sequence. The information was gathered and compiled through the help of several amateurs who took the time to locate the information through back issues of QST magazine. If anyone has any corrections please let me know.

Aside from keeping track of the DXCC records and the WORLD TOP-BAND FREQUENCY ALLOCATIONS; I am still in the process of pursuing possible publication of the manuscript that I have written entitled "160 Meter DXing --- A BAND WITH MANY CHALLENGES". Along with many charts, graphs and even an extensive bibliography that goes back to the late 20's and early 30's; not to mention the 315 top countries listing with over 275 entries of countries with operating privileges on both CW and SSB. Well, enough on this subject matter; it was only fitting to make as many aware of the fact that this is the 10'th anniversary for TOP-BAND DXCC. So, HAPPY ANNIVERSARY TOP BAND OPERATORS who have achieved their goal and also to those of you who are just a short distance away.

## 160 METER DXCC CERTIFICATE HOLDERS

| Cert. # | NAME | Call | Date |
|---|---|---|---|
| 01 | STEW PERRY | W1BB | 11-01-76 |
| 02 | RALPH GREEN | W1HT | 11-01-76 |
| 03 | WALLACE ECKLES | W8LRL | 11-02-76 |
| 04 | HERB SCHOENBOHM | KV4FZ | 11-03-76 |
| 05 | ERNIE HEMMINGWAY | K1PBW | 02-14-77 |
| 06 | GENE SYKES | W4BRB | 02-24-77 |
| 07 | JAMES SERAFIN | W2QD | 03-15-77 |
| 08 | JIM DUPONT | W2DEO | 03-15-77 |
| 09 | BOB ESHELMAN | W4QCW | 12-20-77 |
| 10 | PAUL NEWBERRY | W4YWX | 01-18-78 |
| 11 | WILLIAM MCDOWELL | K4CIA | 05-11-78 |
| 12 | CHARLES O'BRIEN | W9NFC | 07-27-78 |
| 13 | MARION JACKSON | N4JJ | 01-17-79 |
| 14 | ROLF RASP | PY1RO | 07-18-79 |
| 15 | BILL MCDANIEL | N4EA | 11-07-79 |
| 16 | DAVE WILSON | G3SZA | 03-03-80 |
| 17 | WILLIAM MORSINK | PAØHIP | 03-17-80 |
| 18 | SANFORD HUTSON | K5YYTF | 12-15-80 |
| 19 | MIKE FARRANT | GD4BEG | 03-10-81 |
| 20 | AUSTIN REGAL | N4WW | 06-24-81 |
| 21 | JAMES GASQUE | N4SF | 07-06-81 |
| 22 | HENRY LUHRMAN | W4PZV | 04-28-82 |
| 23 | JOHN DORMOIS | W5SUS | 04-30-82 |
| 24 | KEITH SPICER | G3RPB | 11-02-82 |
| 25 | ROGER MACE | W6RW | 04-11-83 |
| 26 | GARY MITCHELL | KH8AC/W1 | 05-31-83 |
| 27 | JON ZAIMES | AA1K/W3 | 07-13-83 |
| 28 | DICK GIBSON | GI3OQR | 09-28-83 |
| 29 | BILL POELLMITZ | K1MM | 12-13-83 |
| 30 | JAMES DIONNE | K1MEM | 12-13-83 |
| 31 | JARA BLAHNA | DL1YD | 12-13-83 |
| 32 | DAVID KENNEDY | N4SU | 12-21-83 |
| 33 | PETER BOBEK | DJ8WL | 12-27-83 |
| 34 | JOE KRONE | WA2SPL | 01- -84 |
| 35 | BOB ROBINSON | W4ZR | 01- -84 |
| 36 | ROBERT ALLPHIN | K4UEE | 01- -84 |
| 37 | R G D STONE | GW3YDX | 01- -84 |
| 38 | HARROLD JAFFE | W2TQC | 02- -84 |
| 39 | S RIDDELL | GM3YCB | 02- -84 |
| 40 | MIKE SAMARCO | W1JZ | 02- -84 |
| 41 | DONALD KARVONEN | K8MFO | 03- -84 |
| 42 | ROBERT BILLINGS | VE1YX | 03- -84 |
| 43 | DONALD WILSON | K2DSV | 03- -84 |
| 44 | LANDEAN BAILEY | W1OO | 03- -84 |
| 45 | NORWOOD LOWRY | W3AP | 03- -84 |
| 46 | GARY WOODHOUSE | K2UU | 04- -84 |
| 47 | LESLIE MURPHY | K4DY | 04- -84 |
| 48 | RICHARD RODERICK | K5UR | 04- -84 |
| 49 | JOE SUBICH | AD8I | 04- -84 |
| 50 | ROSTISLAV POSPISIL | OK2PGU | 04- -84 |
| 51 | RONALD BLAKE | N4KE | 04- -84 |
| 52 | BEN STEVENSON | W2BXA | 05- -84 |
| 53 | RANDY SCHAAF | W9ZR | 05- -84 |
| 54 | EARL CUNNINGHAM | K6SE | 05- -84 |
| 55 | JOSE GARRIGA | EA3VY | 05- -84 |
| 56 | ART MALLORY | VE1BNN | 05- -84 |
| 57 | JEFF BRIGGS | K1ZM | 06- -84 |
| 58 | JOHN KENNEY | W1RR | 06-84 |
| 59 | JOHN MATTHEWS | W4OWJ | 10-84 |
| 60 | JOHN GOLLER | K9UWA | 11-15-84 |
| 61 | ED CHINNOCK | W2FZY | 11-84 |
| 62 | STEVE REICHLYN | AA4V | 02-85 |
| 63 | LEIF OTTOSEN | OZ1LO | 03-85 |
| 64 | JIM POWER JR. | K1NA | 03-85 |
| 65 | CHARLES DEWEY | WØCD | 03-85 |
| 66 | JOHANN BRUINIER | DL9KR | 04-85 |
| 67 | PIERRE PETRY | HB9AMO | 04-85 |
| 68 | HANNU NIEMINEN | OH1XX | 04-85 |
| 69 | JOE REISERT | W1JR | 04-85 |
| 70 | BILL DENNIS | W1WA | 04-85 |
| 71 | JOE PAINTER | W2BHM | 04-85 |
| 72 | AL PONTUS | W2FCR | 05-85 |
| 73 | RON YODER | W9CG | 05-85 |
| 74 | BERNY MUELLER | DJ8FW | 06-85 |
| 75 | KOICHI ISHIDA | JA1GTF | 06-85 |
| 76 | AKITO NAGI | JA5DQH | 06-85 |
| 77 | RIKI KLINE | 4X4NJ | 06-85 |
| 78 | CRAIG CLARK | N1ACH | 06-85 |
| 79 | JOHN YODIS | K2VV | 06-85 |
| 80 | JAMES CARY | W2SM | 06-85 |
| 81 | TOM GREENWAY | K4PI | 06-85 |
| 82 | ED RICHMOND | W4MGN | 06-85 |
| 83 | KLAUS DOERING | DL1RK | 06-85 |
| 84 | KINJI MAKINO | JA2GQO | 06-85 |
| 85 | FRANK VANDIJK | PA3BFM | 06-85 |
| 86 | JOHN DOYLE JR. | KA1PE | 07-85 |
| 87 | BOB BOULLE | W2OKM | 07-85 |
| 88 | BOB JOHNSON | W5TO | 07-85 |
| 89 | RON MOOREFIELD | W8ILC | 07-85 |
| 90 | BILL TIPPETT | WØZV | 07-85 |
| 91 | DON FIELD | G3XTT | 08-85 |
| 92 | C DAVIS | G3ZFC | 08-85 |
| 93 | | UT5AB | 08-85 |
| 94 | DOV GAVISH | 4Z4DX | 08-85 |
| 95 | DAVE SUMNER | K1ZZ | 08-85 |
| 96 | JOHN BURGIO | W2JB | 08-85 |
| 97 | FRANK POLICASTRO | W2LPE | 08-85 |
| 98 | ROBERT KING | W3GH | 08-85 |
| 99 | LEO DRESCHER | AA4MM | 08-85 |
| 100 | CECIL CLIBURN | K4AQQ | 08-85 |
| 101 | HUGH VALENTINE | N4RJ | 08-85 |
| 102 | STAN STOCKTON | K5GO | 08-85 |
| 103 | ALBERT HIX | W8AH | 08-85 |
| 104 | JARO DVORACEK | OK1ATP | 08-85 |
| 105 | MIKE BAZLEY | VK6HD | 08-85 |
| 106 | AL JAVERNIK | YU3EF | 08-85 |
| 107 | PHIL KOCH | K3UA | 08-85 |
| 108 | WILLIAM BARR | N4NX | 08-85 |
| 109 | ADOLF KERSCHBAUM | OE5KE | |
| 110 | EDWIN HUGHES | KG4W | |
| 111 | RICHARD SHELAR | K8CCV | |
| 112 | G F GRAY | G3YUV | |
| 113 | FRED BROWN III | K2RIH | |
| 114 | JOHN HILBISH | W3UM | |
| 115 | JAMES RINGLAND | W8JIN | |
| 116 | ED MARTINSEN | WOGYH | |
| 117 | JACQUES RAMBAUD | F6BKI | |
| 118 | TOM RUSSELL | N4KG | |
| 119 | RUDI HAMMER | DL7AA | |
| 120 | OTTO DEGNER | W5YU | |
| 121 | HOWARD BRADLEY | W2QHH | |
| 122 | D P HAYES | G4AKY | |
| 123 | J HANSEN | OZ7JZ | |
| 124 | WALT BERNADYN | W2FP | |
| 125 | CLAYTON MERRELL | W4FX | |
| 126 | MARIO KARCICH | WB2CZB | |
| 127 | ITALO BARBIGRI | I2BBJ | |
| 128 | BOHUMIL KRENEK | OK2BOB | |
| 129 | LAWARENCE FILBY | K1LPS | |
| 130 | ROBERT GRANT | W2LW | |
| 131 | RICHARD KING | K5NA | |
| 132 | MICHAEL AGSTEN | WA8TXT | |
| 133 | JERRY SLAMA | K7VIC | |
| 134 | RON HALLSTEN | WD9AHJ | |
| 135 | FRED LINDSEY | NØXA | |
| 136 | EDUARD MELCER | OK3EY | |
| 137 | KARLEN GRIGORIAN | UG6GAW | |
| 138 | JAMES MACKEY | K3FN | |
| 139 | BURT COHEN | W3GG | |
| 140 | JEORME FIORE | N4JF | |
| 141 | JEAN COURTOT | F6BWO | |
| 142 | GIANNI ZILLIO | I2ZGC | |
| 143 | PIERE VOLPINARI | T77V | |
| 144 | P W WATSON | ZL3GQ | |
| 145 | WALT WESSELL JR | WØCM | |
| 146 | | | |
| 147 | | | |

## BAND CONDITIONS & ACTIVITY

Band activity as well as band conditions haven't been much to brag about this summer season. Activity has been somewhat sporadic with mostly local QSO's with an occasional appearance of a couple of Southern operators. WAØZHH, KU5C, NØXA, WB5MBO and W5SIV are the most regular out of the southern region. Most of their QSO's have been with a members of the western operators group in W6DAO. Occasionally, WØRGK, Saly in Gering, Nebraska makes an appearance and rag chews with a few of the fellows. Usually some of us on the west coast use AA1K signal as a reference point as to what propagation is going to be like for the current evening. Conditions haven't been that great thus far and with the frequent fronts moving in from the coastal area, QRM/QRN levels have been very high with sometimes 20/S9 static crashes. Even with a good receiving antenna hearing is sometimes very difficult even between the man-made noise sources coupled along with the summer time static levels.

Several times this summer season, I have taken a leisurely stroll up and down the band and have actually been astounded with activity on top-band. Below 1830 kHz, there is very limited CW activity; and there are times when there is complete silence.

Going above 1830 kHz I have noticed a few CW signals around 1875, but for the most part most of the activity is primarily concentrated around 1845, 1850, 1865, 1875, 1890 and there are even some quite strong stations occupying the space at 1925 and 1930 kHz. The most popular group on the West Coast is the 1865 kHz group headed by the Grandfather, KC7BL. These guys make excellent use of the band and various modes of operation now available on 160. I have witnessed the use of AMTOR, PACKET, RTTY, CW and SSB on this band many times. I'm not totally in agreement with their choice of modes in that region; however, they don't appear to be affecting other communications in the vicinity of their frequency. I would personally like to see more use of AMTOR, PACKET and RTTY above 1900 kHz so as to spread ourselves out more and make better use of the complete frequency allocation from 1800-2000. This is my personal choice and I'm certain that there are those who will completely disagree.

I have been trying to keep a schedule with KA1SR, Robby in Rhode Island on RTTY at 1935 kHz for the past 2-3 months, but band conditions haven't been cooperating with us. There were a couple of times where I could detect some RTTY activity but not enough even with a good preamp that would give a good display on the monitor, and this is through the use of about 3-4 good filters and a much improved front end to the FT-101E with modifications etc,. We don't think, KA1SR & Myself-N7CKD, that a RTTY QSO between the East Coast & the West Coast has been accomplished. We are working towards the first. Anyone else out there want to accept the challenge as we have and give us some competition? Who will be the first RTTY EAST/WEST Coast QSO?

Top-Band offers so much of a challenge but there is so little activity as compared with the other bands. Maybe we should all be glad that this band isn't as clutterd and in such a state as is the 20 meter band. I say this from a recent experience on 20 meters when 3CØA was on with guys swearing. It was more of a three-ring circus of idiots, mentally retarded children and animals. To think that anyone would want to use expensive equipment to carry on in that sort of manner is without a doubt beyond help and certainly lacks common sense. This is the same type of activity that used to go on down on the "Good Buddy Band". Maybe some of these guys feel that they are still CBers and are looking for attention. Unfortunately, they seem to get what they are looking for as frequent comments and remarks are made to them. All it does is agitate and promote the malicious activity to the point where it is no longer controlable and the DX station leaves the frequency and then everyone loses out. Nevertheless, this type of activity hasn't completely made its appearance to top band yet. Once in a while there are a few strugglers and those who want to impress everyone that they have 3-4-5 plus kilowatts of power and they are going to use it to throw their weight/signal around. Usually these guys end up defeating themselves and either blow the amplifier up or burn the antenna in half. If you haven't tried it yet, turn the KW off and see just how little of power you can operate with and still carry on a reasonable QSO without any problems. Most of the time, I am able to operate with as little as 40 watts up and down the West Coast. Try it sometime, you'll be amazed. If you have any additional challenges that you are working on here on 160, let us know and share it with us in the magazine.

## NQ4I Expedition to 8R1

Rick, NQ4I will be returning to 8R1, Guyana for the 1986 CQ WW SSB Contest and re-activate his contest call 8R1Z. Rick has stated that he will be there for 4-5 days before the contest concentrating on 75 & 160 meters. There are a number of antenna improvements to make the signal better from 8R1. The antennas for 75 & 160 meters include; a pair of 160-75 meter slopers with one sloping down to the ocean towards Europe, and the other favoring the USA. These antennas have been designed by W9INN for the operation this time. Equipment in the shack will include a Kenwood TS-930 and an amplifier to cover 160-10 meters.

Europeans are asked to look for 8R1Z on 160 transmitting on 1827 kHz and announcing his listening frequency each hour beginning at 0200z, 0300z, 0400z, 0500z, 0600z, 0700 Z for the first 10 minutes of the hour. Prior to the contest Rick will be concentrating on 75 SSB, 80 CW, 160 SSB and 160 CW. (With any luck, Ricks signal will be much stronger and clearer than it was last year. We could hear him at various times, but many other signals would override him. N7CKD) For those of you fortunate enough to work 8R1Z, you may QSL to Carol, WI4K direct or through the bureau. NOTE: North American Stations can listen for 8R1Z on 1827kHz and transmit on 1824kHz prior to contest operation. Rick has told me that he will be QRV on the evening of October 21'st around 0200-0300 Z. Good luck Rick, and we are hoping to work you on 160 for a new one. Rick also mentioned that Bill, N1GL will also re-activate P43A during this same period for the contest as well. No other information available at this time.

## REQUEST FOR DXPEDITION/CONTEST INFORMATION

Once again I am requesting your help in providing me with the much needed information regarding some of YOUR personal DXpeditions to outlying areas for some of our varied contests. If you are planning a trip please send me this information at least two months in advance so that I can get it listed in the column. There are a lot of good DX sources out there, but unfortunately not everyone is financially fit to subecribe to them all and keep abreast of this information. This is where I try my best at providing the information to you when it is made available to me; so PLEASE, it only takes a post card with information as complete as possible including times, frequency, dates, call sign used, QSL info etc,. or even a phone call at (206) 833-7243. I would like to see this magazine as the number 1 source for TOP-BAND Information.

## REMOTE RECEIVING ANTENNA SWITCH

Here is a new product to enable the operator to switch freely between several different receiving antennas. The product is manufactured by PINETREE RADIONICS; P.O. Box 343; Fairfield, ME 04937. There are three models to choose from. RAS-4A & RAS-4B for use with 100 watt HF Transceivers; RAS-4R for General Coverage Receivers, 100 kHz to 30 MHz. The unit can be used with coax fed, beverage, loop and long wire antennas. Very easy to operate and simple hook up; has Mode and Antenna select LED Status Indicators; is remotable up to 100 feet and even has an Optional Built-in Broadband Preamplifier. The RAS-4 series of receiving antenna switches provide complete control of 4 remote receiving antennas for HF transceivers or General coverage receivers. A shack located control unit and remote switch are provided. The remote switch includes hardware to permit tower, mast, post or house mounting.

Multi-colored LED displays indicate the mode of operation and selected antenna. The RAS-4A and RAS-4B have a built-in T/R function which automatically switches the HF transceiver between receive and transmit antennas. Should a key line, power supply or switching fault occur, the unit automatically reverts to the transceive mode. All models have built-in static protection, and use quality parts and are of sound, reliable design.

For a free, detailed specification sheet, prices and ordering information, please write: RADIONICS; or you may call the individuals themselves. Jim, KB1SH (207) 429-8294 or Bob, KA1FDS (207) 453-2416. These units appear to be constructed very well, and have a very professional appearance. (N7CKD)

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# 160 m DX News

Wally Stefanoff, LZ2CJ

PO Box 73, Levski, Bulgaria

## 1986 CQ WPX CW Contest

In this year's WPX CW contest the European stations did not enjoy a good DX propagation. Most of the contacts were made within their own continent. The LZ2CJ station was operated by my friend Kristo, LZ2NZ. Unfortunately, he was not able to operate the full time and missed the period when most of the multi operator stations come down to work multipliers on 160. I was able to monitor the band from LZ2KTS finding it very noisy and the activity was down from the last year. Most of the time I heard Europeans only and there were no openings to Africa or South America. The only North American stations heard here were VE1ZZ on the first night, VE3BMV and K2EK on the second night. Openings were very short, only about 5 minutes and all three stations kept working locals while LZ2CJ was calling them. It looks like it was either a one way propagation or the local QRM/QRN was covering up the weaker signals. The following Asian stations were worked from LZ2CJ: 4X4NJ, UZ9AWP, RZ8MH, UV9UWW, UH8EWW, UA9QDA, UZ9CYP, UA9KAA, UD6DKZ, UZ9CWB, RD6DAA and RL8PYL. Actually, those were the only DX stations worked during the contest.

The preliminary results of LZ2CJ are: 214 QSOs, 106 prefixes for about 50,000 points. A special thanks to our Greek friends for showing up and providing a few extra multipliers.

The best European scores can be expected from RT5UY, OK1DXS, YU2TW, UB4FWC, LZ2CJ and others.

VE3BMV has also operated on 160 m and worked 150 QSOs, 77 prefixes for 43,736 points. The only DX QSOs were: 4M4A, YV1OB, HK1AMW, PY1RO, ZF1EJ, KD2HE/VP9 and 4U0UN.

Andreas, 5B4LP, managed to accumulate 179,000 points on 160 in the 1986 WPX SSB contest.

## DL6RAI and DL7MAE visit.

On May 22nd I was pleasantly surprised by two guests who found me at my dental office: Ben, DL6RAI and Helmut, DL7MAE. Ben is a very well known contester and Helmut is an avid 160 m DXer. Both are in their 20's and very enthusiastic about contesting and DXing. After leaving my office, we went to my second QTH, where my station is located. The first thing that Helmut did was to turn on the IC-701 and tune across the 160 m band.

The band was noisy as it usually is at this time of the year and it was too early for any Asians to come through. Both of my German friends were very surprised to find that the band sounds different than what they are used to in DL. Most of the frequencies that are clear in DL were noisy here. Stations they were able to hear on the band here, especially from Eastern Europe and Asia, were much louder and numerous than in DL. All those loud G, HB, F and other Western European station were way down in the noise here. There was a mutual agreement that even 100 kilometers can make a big difference on 160 meters. After taking some pictures, we drove back to my home in Levski. Friday morning we drove to the LZ2KTS club station where DL6RAI and DL7MAE had to get ready to operate in the WPX CW contest with rest of the LZ2KTS gang. After the first day of operating I asked Ben what did he think about the propagation from LZ (it was fairly good from our point of view). His answer was: It feels like being in Germany and operating the test during the sunspot maximum!!! After the contest our friends visited LZ1KDP in Sofia and YU1EXY in Belgrade on their way back to Germany.

## The new regulations in USSR

New rules for registration and use of ham radio stations in USSR have been accepted lately. They have three categories for the club stations and four for the individual stations. Those being in categories 1, 2 and 3 must pass exams which require a Morse code test. Those in category 4 are allowed to use 160 m band on SSB only!!

The maximum power allowed is now measured as an output to a dummy load rather than being calculated as an input to the final stage of the transmitter. Category 2 can use 50 watts output now. The age limit for the category 4 stations is 14 years and 16 years for the remaining categories.

Category 2 can operate 21 and 7 MHz, SSB. Category 3 stations can operate 21 MHz but CW only and no 7 MHz at all. Category 1 stations can operate 10.000 to 10.150 MHz, CW only.

There were some comments about the measures taken to enforce the allowed power limitations. A really good article written by UF6FHC was printed in the April issue of USSR's "RADIO" magazine about the situation with 160 m band in USSR. Here is a brief excerpt:

"As a rule, 160 m band is the band where most of the newcomers to ham radio begin their exposure with the radio world. This is because of ease of building the low band equipment and operating on all modes. Too, there are many DX stations and contests on the top band. This band is very popular among all members of the ham community in USSR. We must admit that it is very hard to accommodate experienced operators and novices at the same time within the allowed, narrow band of 100 kHz. After the band was moved to the 1830 - 1930 kHz segment, the possibility of making DX contacts was expected to improve, but curiously, the opposite has happened. Increased QRM levels are making it very difficult to work DX among the strong local signals.

"It has been considered to separate the portions of the band according to different categories of the license, but it was concluded that such action will not solve the main problem of achieving good discipline and maintaining ethics on the air. It is obvious that bad behavior such as, tuning the transmitter with the antenna connected or calling CQ without asking if the frequency is in use, have a negative influence on the newcomers. It is time to penalize those who do not behave according to the rules as soon as they are 'discovered.' 160 m band has become the mirror of amateur bands for the newcomers in USSR.

"So we recommend that you, experienced operators, work more often on 160 m and make contacts with novices in order to demonstrate the proper operating procedures and not just work DX or demonstrate your master skills. We know you have them. Work to educate the new operators and show them, with your behavior, how to operate properly and how to represent your country to the rest of the world."

In the upcoming issue I will inform you about the USSR Top Banders Meeting held this June in Kiev.

## ACTIVITY INFORMATION

According to the information exchanged between the stations who regularly check into 4X4NJ 160 m DX info net on 20 m, the activity was very low lately. Here, in Europe, the local activity is about the same with Europeans working each other, with an occasional Asian station available in the evening hours.

| | | | |
|---|---|---|---|
| Z21EV | 2300Z | TX 1823.5 kHz -1835 | |
| CO7RG | 0258 | 1859 | |
| HK1AMW | 0912 | 1833 | |
| JA7DLI | 1107 | 1910 | |
| KH6CC | 0509 | 1831 | |
| KL7Y | 0946 | 1829 | |
| OK3CQR | 2355 | 1828 | |
| PA3DQW | 2350 | 1829 | |
| PY1MAG | 0900 | 1832 | |
| UA0KBW | 1100 | 1832 | |
| VK5KL | 1207 | 1830 | |
| WP4L | 0337 | 1838 | |
| ZL2BT | 0611 | 1840 | (LZ2CJ) |

## MARKET REEF OPERATION

Don Karvonen, K8MFO

The OH0MD/OJ0 operation is now history. The crew of OH2BH, OH2BAZ, OH0NA, OH0RJ, W6EUF, K8MN/OH2 and K8MFO made 18,257 contacts during a one week operation. This is an all time record for the QSO number from Market Reef. There was virtually no 10 or 15 meter propagation. We made the first OJ0 to USA contacts on 160 meters.

While the boys in the USA were concerned with getting the air conditioning going, we had a different type of problem. A terrific storm hit Market Reef during our operation. The waves were peaking up to 33 feet and the winds up to 70 MPH. If you remember the pictures of Market Reef from the previous RADIOSPORTING issues, you can well imagine that very little remained above water.

We used 5 different antennas on 160 m during our operation which became casualties of the weather. Also, our 50 foot tower and 20 meter beam were destroyed. While we were able to retrieve the tower, the beam is still floating somewhere in the Baltic Sea!

All QSL cards for this operation go to OH2BH CBA address.

On the way to OJ0 I had an opportunity to stop at the old OH0W contest location on the Aland Islands. Courtesy of OH2BAZ and OH2BH, I operated 10 hours on 20 m CW as K8MFO/OH0 and made 1,582 QSOs. QSL via W8TPS. (K8MFO)

# 80 m DXing

John Devoldere, ON4UN, AA4OL

*We are proud to introduce our new columnist, John Devoldere, ON4UN, AA4OL. He is the world's leading 80 meter DXer, having confirmed 306 (321 with deletions) countries on 80 which is only one away from the first 80 meter DXCC Honor Roll. John was also the first amateur in the world to achieve 5-band WAZ award. He also holds the 5BDXCC, 5BWAS and the USA-CA all counties awards.*

*ON4UN has been licensed since 1961. He is 45 years young but feeling barely 25, except when it comes to a 48 hour contesting stretch. John is an electronic engineer and has worked for ITT in the field of telecommunications for 18 years. He is a Marketing Manager for the ITT electronics component factory in Ghent, Belgium. John enjoys writing and developing computer programs for amateur applications, as well as building antennas and equipment.*

*The equipment used at the ON4UN station is a TS-930S, TS-940S and Alpha 76CA. The antennas are monoband Yagis for 20, 15 and 10 m, with a single 88 ft vertical for 40, 80 and 160. For receiving on low bands John uses eleven Beverage antennas between 500 and 1000 ft long. He is working on the design of a 3 element 40 m beam (using the Mini-nec program and W2PV's element taper algorithm) and collecting material for the antenna. John's vertical on 160 meters uses linear loading stubs (similar to Hy-Gain 402BA elements) with an extensive radial system which is working with about a 65 percent efficiency.*

*We extend our welcome to John and we are sure that he will keep us all posted on the secrets of low band operating. Please stay tuned to ON4UN.*

*de VE3BMV*

They say that the first time is always the most difficult. Being that, this is the first time I write for RADIOSPORTING, this column did not come easy. When Yuri asked me if I could help the magazine with regular contributions on 80 meter DXing, I was glad to say yes. But, although writing is not entirely new to me, writing a regular column with a given deadline is like working 2 meters.

Fortunately, I can start in the middle of the idle season. At least it is the idle season for us up here, in the Northern Hemisphere. If the situation was such that 85 percent of the ham population was living in the Southern Hemisphere, we would have the peak DX season in the middle of "our" summer. Imagine what our friends down under must go through when we are working them on a cold winter morning while they are trying to decipher signals in the middle of 30dB over S9 static crashes. And yet we have the pretensions to call "our" winter season as the low band DX season! Today, when I tune the receiver to 80 meters, I hear just noise but no ham activity in both CW and Phone DX subbands. So it is my idle season. Or maybe, not so idle after all.

June brought me a new country on 80/75 meters: Pagalu, formerly called Annobon Island. I think it was a good operation. I know it did not happen in the best of seasons for my friends on the West coast to work them, but they were active on all bands, all modes. Even on RTTY. I did not check whether they were on 160 or not, the reason being that in Belgium, we still do not have permission to operate on the top band.

In the mean time, we are the last country in Europe left without the 160 meter license! I understand the talks are still going on between the Belgian IARU member society and the officials. So eventually, we might get that permission. I have been told that some of the coastal stations would have to be moved. The Belgian coast is 40 miles long (everything is "mini" here). On both sides of the Belgian coastline, in both France and Holland, 160 meters is a reality. Unfortunately, the signals from across the border do not reach us, and only the 160 meter signals from Belgian hams will cause interference to the coastal station... By the way, I have done quite a bit of listening on 160, but apart from OSN on 1830 I have never heard any other ON station in the 1830-1850 kHz window. Yes, we know that much; 1830 to 1850 will be our 160 meter window.

Back to the 3C0. On Sunday, June 22nd, I walked across the fields near the QTH and found the African Beverage antenna down on the ground. During the summer the farmers always seem to get their farming equipment tangled up into the wires. It took me an hour or so to get it back up, but it was all worth the effort. The first time 3C0A was heard in Europe on 80 meters was on that same Sunday. He QSY'd from 40 meters, and came back to my call. As expected, there was a whole bunch of guys standing by to work him.

While waiting for him to show up, I had acknowledged the calls of a number of stations and what I was afraid of, happened again. You must know I hate lists. Well, the operator at 3C0A wanted to work from a list. Even though it is a poor substitute for a real QSO, when not working split frequency, sometimes it is the only solution. That is why I like CW a lot better on which I have never heard anyone working from lists. Unfortunately, we do not hear as much good DX on the CW band as we do on SSB! The first night about 40 or 50 caught the fish that was snapped onto the hook. Many of those QSO's are not worth the name. At best the report was acknowledged, even though in many cases a two-way unassisted exchange of the call would have been impossible. What I can't understand is why so few of the operators on DXpeditions work a split frequency on 80 m SSB.

During the following days, while looking around for the 3C0 on CW, it was remarkable to see how good the propagation was to South America and South Africa. As far as the 3C0 is concerned, being located so close to the equator, there really is no low band DX season. The DX season in those areas, are the quiet seasons when thunderstorm activities are at a minimum. And when is the band peaking for those areas? Generally for propagation going North-South (from 140 to 220 degrees) into the equator zones or across the equator, the band is peaking around midnight at a spot located midway between the two ends of the great circle path. Gray lines are usually not very good paths, at least not into areas near the equator (between both tropics). The reason for this is the rather abrupt transition between day and night in those areas.

This brings me to gray line propagation. It has often been written and assumed by many that the width of the gray line zone is constant along its circumference. Nothing is less true! If one has found out by experiments and experience that the gray line lasts 30 to 45 minutes before sunrise and 20 to 30 minutes after sunrise in the middle of the local winter, these same figures do not apply for other times of the year or other locations (latitudes). The phenomena of gray line propagation is triggered by the fact that in the terminator zone, the onset of radiation into the ionosphere creates a lift in the ionosphere whereby enhanced propagation results due to an effective lower angle of reflection (refraction? Ed.) in the ionosphere. This sometimes results in a ducting type of propagation without intermediate ground reflection. The conditions for such a lift are a given the amount of UV radiation together with a given amount of D layer refraction. These conditions will prevail for a longer time where and when the sun rises or sets slowly. This is in latitudes near the polar circles and in mid winter. In the area between the tropics and especially near the equator, the sun always rises quite abruptly. Consequently, the gray line zone is very narrow, typically + or - 10 minutes of sunrise or sunset. Close to the polar circles, the sun hardly rises during the local winter, thus, the gray zone remains active for a longer time. Beyond the polar circles, Gray line conditions exist all day long in mid winter. Visual gray line aids such as the DX-edge unfortunately do not show this variable effective width of the Gray line. Existing computer programs all use a fixed zone width which in some can be defined. My new book, "LOW BAND DXING" which will shortly be published by the ARRL, deals in detail with the above phenomena and many other related to successful low band DXing. I have also developed a computer program using an exclusive algorithm that adapts the effective width of the gray line zone to the latitude of the location as well as the time of year. The software will be made available with more than two dozen other programs of interest to the devoted low band DXer (in MS-DOS, CPM and DOS-3.3). The programs also include several results within 1 minute of true sunrise and sunset times. Exact times are very important to know especially for 160 meter operation, where the gray line peaks can be extremely short. Watch out in this and other magazines for book and software release dates and sources. By the way, most of the low band gray line paths do <u>not</u> follow the terminator, but rather run perpendicular to the gray line. Some very spectacular low band paths, however, do run along the gray line. Plenty of examples are given in the new book.

Use the sunny summer months to put up the new low band antennas. Don't wait until rainy season which will make it a torture!

More about the secrets of low band DXing next month! (ON4UN)

# for little pistols

Paula Franke, WB9TBU

PO Box 873, Beecher, IL 60401

## THE COMPETITIVE SMALL STATION

This month I'd like to introduce my guest columnist, Pete Elmendorf, KB2OR.

Pete writes:

"'Smallness' should not be understood as low power alone. There are many constraints which are imposed upon stations which affect their ability to communicate. Some of these are, in no particular order:

1. Receiver flexibility
2. Transmitter flexibility
3. Antenna constraints
4. Output power
5. Available operating time

"Of course, operator skills go without saying as the most important assets that the small station can have. Working contests can improve these skills. And, as Paula states, keep listening, listening...

"From my own experience, I'd say that transmitter-receiver capability and good antennas are more important than just output power. I'd rather have a good 100W rig with stacked Yagis than a kW with a low dipole. Also, the amplifier does no good on receive. Can't work 'em when you can't hear 'em!

"I'd hazard a guess that many, many stations operate under at least one, if not more, of the above constraints. Personally, I've got antenna constraints (3 dipoles at from 20 to 30 feet up), 100W output, and limited operating time. My method for coping is to make the most of what I do have.

"The greatest advantages my station has are, in order, a very understanding XYL (who not only understands my craziness but helps with antenna work) and a good transceiver.

"I prefer using CW for contesting and DXing. In fact, at least 95% of my QSOs are CW. It has nothing to do with 'spirituality' (which I've seen commented on lately) and everything to do with constraints. If only 100W is available, and the antennas are unimpressive, CW gives much more bang for the buck. (For example, I can work very few EU stations in a phone contest, but get many of them in CW 'tests.)

"I also have no illusions as to winning DX contests (or even coming close). [Cheer up Pete, WRC contest has QRP category! Ed.] However, I enjoy participating in contests, especially the big ones. My solution is to sit back and realize that there is no way I'm going to win. Therefore, I won't care about score. Since I'm not working towards a score, I'm at liberty to do whatever I want to do. My goal is to collect states for banded WAS, and new countries for DXCC and DXCA. So, I back off the worst pileups and hunt. The small station can really benefit from this method.

"Scout the band edges for ops who like to stay out of the crowds. Surprising what can be found there on occasion. Also, I can't enumerate the number of times I've worked good ones who are 'CQ TEST'ing their hearts out on 15 meters with few takers, while 20 is bedlam. One may find the big multi-multi operations from nice DX places impossible on 20 but easily worked on 15 or 40 when luck holds.

"Don't ignore the non-contesters. I've worked several new countries by answering their 'CQ DX' calls during contests. (This usually occurs in the high end of the sub-band, far from the 'test.) Sure, give 'em a nice QSO, complete with small talk. Then get back to the contest.

"Contests are good ways to get those QRP states and countries, too. When the bands hold up, the QRPer can get a lot done in a short time. Remember, the big contest stations have <u>really</u> nice setups. If they can hear you, you'll get your QSO. If they can't, odds are that no one else in that area can either! But remember not to hold them up (see section on fair play, below).

"During weekend contests, I've found that Sunday is better than Saturday for low power work, especially QRP. The crowds seem smaller and the heavy contest stations are CQing away, sometimes with NO takers! This, of course, means much less competition for the small or QRP station.

"It's even fun trying to break those snarling pileups for a new one. The contesters on the DX end are usually crack operators, and you may be pleasantly surprised with a juicy DX contact, even though many better endowed stations were calling. Of course, it's more fun to hear a blistering pileup on 20 over a nice one you previously tucked into the log book on 15 or 40!!

"Even if one's station is not well equipped now, it may be at some time in the future. If one harbors secret desires of 7BDXCA, but has only low power and poor antennas, START ANYWAY. Pick up those multi-op DXpeditions on as many bands as possible. QSL them NOW. Postal rates can only go up in the future. IRCs won't get any cheaper. Get cards into the bureaus NOW; they are not going to get any faster later. Create a base of contacts upon which to build. See how close to the goal one can get. Should one's station situation improve in the future, most of the common ones will be confirmed already (and maybe a good number of rare ones as well). One can then concentrate on the more difficult contacts. And one just may have acquired a few DXCAs along the way.

"A note on fair play:

"Just because one may not be seriously contesting is no excuse for sloppy QSOs. Study the contest rules and exchange before diving in. Make the QSOs as snappy as possible. Keep dupe sheets. When running QRP and the other op is having trouble (asking for many repeats), QRO immediately and give him his contact. Don't slow the other station down.

"Remember that there are stations in worse shape than one's own. Be nice. Give QSOs to those ops who are calling and not getting anything. (These are usually found on the contest fringes.) After all, how would one want to act if the roles were reversed? And an occasional dive into the thick of things, going for rate, gives needed points to others and is great sport besides. And who knows what might turn up in there??"

Pete discusses an interesting distinction at the beginning of his article. I'm speaking of the concept of 'the small station'. What constitutes a small station? Certainly, all of the constraints that Pete lists are all attributes of the small station. What constitutes a QRP station? I've always felt that QRP is a state of mind. Certainly the 50 or 100 watt

station feels QRP compared with all the kilowatts out there, or even when competing against a 200 or 500 watt station. Officially, however, QRP is commonly agreed to be operation at power output levels of no more than 5 watts CW or 10 watts p.e.p. on SSB.

In the 10 years that I've been involved in amateur radio, I've never operated more than about 50 watts output from my station at home. This was not because of the philosophy that low power was best, but because low power rigs are generally much less inexpensive than high power ones with amplifiers. After a delightful weekend with the QRP folks at the Dayton HAMVENTION, I came back home with a renewed resolve to try my hand seriously at QRP. My current rig is a TenTec Argosy. Many times during a pile-up I've wished for a magic switch that would increase my power dramatically. Well, the Argosy has a magic switch hidden in the back that can switch from 50 watts out (100 watts in) to 5 watts out (10 watts in).

All through the month of May and half of the month of June, I did nothing but operate in the neighborhood of 4 watts...sadly, with no success. Then, in mid-June, the propagation gods apparently began to feel generous. It started as a trickle, but now it's almost a snap. The most amazing thing is that the signal reports aren't that much different than the ones I was getting at 10 times the power. Plus, when I operate QRP, there is a magic switch available now. If things get too rough, then I do have the option of increasing the power when necessary. But I will try my darnest to get the contact logged officially as QRP before going QRO for the ragchew. And I really do appreciate the patience of the stations at the other end. Last night was a good example. The QSO took almost 5 minutes, just to take care of the basic info. There were other stations waiting, so I was wringing my hands, holding my breath, and beseeching the powers that be to please let the propagation hold up long enough to finish this QSO! It did hold up long enough, and a very nice entry made it into the QRP log: F3NB. I never would have believed that I ever again would have been as excited as a Novice over a contact with France. It's a nice feeling.

That's it for this month, folks. Keep those cards and letters coming! 73, Paula Franke WB9TBU

## CB TRANSCEIVER KILLED

An 11 meter citizens radio transceiver in La Habra, California, has been shot to death by an armed intruder. According to the Orange County Register, Dennis Carrico was talking on his CB set after midnight when he sensed that he was no longer alone. Carrico turned and saw a stranger with a gun standing over him. The gunman ordered him to turn off the CB and move away from it. Carrico obeyed, after which the visitor shot it three times and quietly left. Carrico was not harmed, but his $500 transceiver was destroyed. Police theorize that the attack was in retaliation for TVI. The gunman was described as a white male, 45 years old, blonde hair, 5'8" tall and weighing about 155 pounds. Anyone with information on the identity of the CB assassin is asked to contact Captain Herb Johnson of the La Habra Police Department. (Westlink Report)

RADIOSPORTING NEW ADDRESS:
PO Box 282, Pine Brook, NJ 07058 USA

## RADIO PRANKSTER ARRESTED

A series of phony "SOS" Calls have cost another radio prankster his freedom. Twenty-two year old Bruce Humenik is currently in jail undergoing a court ordered psychiatric examination after the FCC and FBI caught him red-handed issuing a phony distress cal by radio to the Coast Guard's Gloucester City, New Jersey, rescue station. The Coast Guard had requested FCC's and FBI's assistance to track down the hoaxster who had been believed responsible for issuing phony distress alerts on numerous occasions.

Using high tech DF equipment mounted in unmarked cars, the detectives were able to drive to the source of the illegal signal. As a result, the resident of Maple Shade, NJ was taken into custody. Humenik was sentenced on June 2 to the maximum of five years in jail and a $250,000 fine by a federal judge in Camden, NJ. The defendant pleaded guilty to threatening a Coast Guard Radio Operator during on of what authorities allege were dozen of bogus marine broadcasts beginning in May 1985.

In 1985, according to statistics from Coast Guard Headquarters, the service responded to 67,775 distress calls last year. Only 4,876 were hoaxes or false alarms. (WESTLINK REPORT)

## CALLBOOK SURPRISE

A central Missouri repeater trustee who recently purchased a new copy of the Callbook got quite a surprise. On getting the book, the first thing he did was to look up all of the users of his machine. Needless to say, he was more that a bit shocked when he noticed that one of his regular members was listed holding a Novice Class license. A check with the local FCC office confirmed this information. Even more shocking is the fact that this Novice had even been the president of another central Missouri repeater club. Because he was not caught by the FCC, all he suffered was an order to stay off 2 meters until he upgrades, but this came after 5 years of illegal operation. (Westlink Report)

## PRESERVING W6AM RHOMBIC FARM

PLANS TO DEVELOP the famous W6AM "rhombic farm" property atop the Palos Vardes Peninsula near Los Angeles have been put on hold as the result of local civic action. The Rancho Palos Verdes Planning Commission has ordered that the Public Hearing on the development request be continued and has instructed the developer to prepare a limited Environmental Impact Report concerning the historical significance of the property.

Testimony from members of the Palos Verdes Amateur Radio Club, this Historical Society and residents of the neighborhood convinced the Commission members that further study of the proposed project was warranted by the city. The matter will come before the commission again June 24th or July 8th. (WESTLINK REPORT)

### COMMONWEALTH PHONE CONTEST CANCELLED

There was only one entry in the 1986 CARF Phone Commonwealth Contest - ZF1MM (op. VE5RA) 1435 points. CARF has decided to discontinue 1987 run.

# CONTEST RULES

FRANK ANZALONE, W1WY

CQ Magazine

*14 Sherwood Road, Stamford, CT 06905*

**Calendar of Events**

| | | |
|---|---|---|
| Sept. | 3-5 | YLRL "Howdy Days" |
| Sept. | 6-7 | 160M. Bulletin SSB Contest |
| Sept. | 13-14 | European Phone Contest |
| Sept. | 13-15 | Wash. State QSO Party |
| Sept. | 13-15 | ARRL VHF QSO Party |
| Sept. | 14 | North American CW Sprint |
| Sept. | 20&21 | CRRL CAN-AM Contest |
| Sept. | 20-21 | Scandinavian CW Activity |
| Sept. | 21 | North American SSB Sprint |
| Sept. | 27-28 | Scandinavian SSB Activity |
| Sept. | 27-28 | California QSO Party |
| Sept. | 27-28 | Delaware QSO Party |
| Sept. | 28-29 | Classic Radio Exchange |
| Oct. | 4-5 | IRSA World Championship |
| Oct. | 4-5 | "Middle of World" Contest |
| Oct. | 4-5 | VK/ZL/Oceania SSB |
| Oct. | 11-12 | VK/ZL/Oceania CW Contest |
| Oct. | 11-12 | Pennsylvania QSO Party |
| Oct. | 12 | RSGB 21/28 MHz SSB |
| Oct. | 12-13 | Illinois QSO Party |
| Oct. | 15-17 | YLRL Anniv. CW QSO Party |
| Oct. | 18 | RSGB 21 MHz CW Contest |
| Oct. | 18-19 | ARCI QRP CW Contest |
| Oct. | 18-19 | Boy Scout Jamboree |
| Oct. | 18-20 | CARTG RTTY Contest |
| **Oct.** | **25-26** | **CQ WW DX Phone Contest** |
| Oct.25 | -Nv.1 | Cayman Is. Pirates Week |
| Oct. | 29-31 | YLRL Anniv. SSB QSO Party |
| Nov. | 1-2 | IPA Radio Club Contest |
| Nov. | 8 | ALARA YL/OM Contest |
| Nov. | 8-9 | European RTTY Contest |
| Nov. | 15-16 | AOEC 160 Meter Contest |
| Nov. | 15-16 | Oceania QRP CW Contest |
| **Nov.** | **29-30** | **CQ WW DX CW Contest** |

## 160 Meter Bulletin SSB Contest

0000Z Sat. to 2400Z Sun., Sept. 6–7

Evidently, this one is run by the same group behind the Wild Bunch 160 meter activities. It's still a little early in the season for 160, but September could produce a good weekend.

**Classes:** Both single and multi-operator.

**Exchange:** RS and QTH.

**Scoring:** 10 points per QSO.

**Multiplier:** States, VE provinces, DX countries, and continents.

**Awards:** Certificates to the top scorers in each of the above areas. Plaques to the overall single operator and multi-operator winners.

Mailing deadline for logs is October 31st to: The 160 Meter Bulletin, c/o R. Koziomkowski, KA1SR, 5 Watson Drive, Portsmouth, RI 02871.

## ARRL VHF QSO Party

1800Z Sat. to 0300Z Mon., Sept. 13–15

All bands 50 MHz and up can be used for this one. The August issue of *QST* should have had all the details.

It is recommended that you send for official summary and log sheets. A large SASE will get you a supply. Send to the ARRL, VHF Contest, 225 Main St., Newington, CT 06111.

## Wash. State QSO Party

0100Z to 0700Z Sat., Sept. 13
1300Z to 0700Z Sat./Sun., Sept. 13-14
1300Z to 0100Z Sun./Mon., Sept. 14-15

This is the 21st annual party sponsored by the Boeing Employees ARS (BEARS). The same station may be worked on each band and mode for QSO and multiplier credit. Wash. stations may work other in-state stations for QSO points.

**Exchange:** QSO no., RS(T), and QTH. County for Wash.; state, province, or country for others.

**Scoring:** Phone contacts are worth 2 points, CW contacts 3 points, mobile 5 points.

Wash. stations multiply total QSO points by number of states, VE provinces, and DX countries worked. Others use Wash. counties for their multiplier (maximum of 39). There is an additional multiplier of one (1) for each group of 8 contacts with the same Wash. county for non-Wash. stations.

**Frequencies:** CW—3560, 7060, 14060, 21060, 28060. Phone—3925, 7260, 14280, 21380, 28580. Novice—3725, 7125, 21150, 28160.

**Awards:** Certificates to the top scorers, both single and multi-operator, in each state, VE province, DX country, and Wash. county. Additional awards where warranted.

The Worked Five Bears Award is available to anyone working 5 club members before, during, or after the party. The Worked Three Cubs Award is available for working 3 Novice club members.

Include a check sheet with your entry if you made 200 or more contacts. Results will be mailed to all entrants, no SASE required.

Mailing deadline is October 15th to: BEARS, c/o David Long, N7FNG, 6738 Fifth Ave. NW, Seattle, WA 98117.

(Note: Above awards taken from last year's list. None indicated in this year's announcement. Probably an oversight.)

## Scandinavian Activity Contest

C.W.: Sept. 20-21 Phone: Sept. 27-28
1500Z Saturday to 1800Z Sunday

It's the world working the Scandinavians in this the 28th SAC. The same station may be worked on each band for QSO and multiplier credit.

The prefixes used in Scandinavia are: LA, LB, LG, LJ (Norway); JW (Svalbard & Bear Is.); JX (Jan Mayen); OF, OG, OH, OI (Finland); OHØ (Aland Is.); OHØM (Market Reef); OX (Greenland); OY (Faroe Is.); OZ (Denmark); SJ, SK, SL, SM (Sweden); TF (Iceland).

**Bands:** 3.5, 7, 14, 21, 28 MHz according to IARU band plans; 3560/3600, 3650/3700, 14060/14125, and 14300/14350 kHz should be kept free of contest activity.

**Classes:** Single operator and multi-operator single transmitter, all band only. Multi-operator must remain on the same band for at least 10 minutes. Also QRP single operator (maximum of 10 watts output) and SWL (only SAC stations may be logged).

**Exchange:** RS(T) plus a QSO number starting with 001.

**Points:** European stations score 1 point for each SAC contact. Non-Europeans score 1 point on 14, 21, and 28 MHz, and 3 points on 3.5 and 7 MHz.

**Multiplier:** Each call area in the above

list of SAC countries worked on each band (call areas, *not* prefixes).

**Final Score:** The sum of QSO points from all bands times the sum of the multiplier from each band. Scoring for SWL's same as above.

**Awards:** Certificates to the winning station in each class, both CW and phone, in each country and each U.S.A. call area. QRP stations will be listed in one common list. The non-SAC SWL winner will be awarded. Plaques to the top-scoring station in each continent.

The usual disqualification criteria will be observed. Include a summary sheet and a dupe sheet for logs with more than 200 QSOs, and a signed declaration. Mailing deadline is October 30th to: EDR Contest Manager OZ1LO, Leif Ottosen, Bankevejen 12, Kong, DK-4750 Lundby, Denmark.

## North American "Sprint"

CW: Sept. 14 SSB: Sept. 21
Sunday 0000Z to 0395Z (Sat. night)

This is the fall edition of the "Sprint" run by the National Contest Journal. As the name implies, it's a shorty, only four hours long.

North Americans will be contacting other North American stations as well as stations in other countries, single operator only. North American boundaries are as defined by the rules used in the *CQ* WW DX Contest.

**Exchange:** Call, QSO no., name, and QTH (state, Canadian area, or country).

**Scoring:** Multiply total QSOs by the sum of states, Canadian areas, and other North American countries worked for your final score. (U.S. and VE not countries; KH6 not a state.) There are eight Canadian multipliers: VE1/VO1/VO2, VE2-VE7, VY1/VE8. Non-North American countries do not count as a multiplier.

**Frequencies:** Three bands only: 80, 40, and 20 meters. CW—3540, 7040, 14040. SSB—3900, 7225, 14280. (Plus or minus QRM.)

**Awards:** A trophy to the highest scoring entrant. Certificates to the top scorer in each U. S. call area, Canada, and other country. Also to the ten top scores, to each member of the winning team, and the highest scoring entrant on each team.

Team competition is limited to a maximum of 10 operators as a single unit. Precontest registration is required for each team before the start of the contest—with W6OAT for the CW and K7GM for the SSB.

There are other detailed rules, a special QSY rule, disqualifying penalties, etc. I suggest you write to W6OAT or K7GM if you do not have a copy of the *Contest Journal*.

Entries must be received no later than 30 days after the end of each "Sprint." The CW go to: Rusty Epps, W6OAT, 948-H Kiely Blvd., Santa Clara, CA 95051. The SSB go to: Rick Niswander, K7GM, 4520 N. Central, Suite 500, Phoenix, AZ 85012.

## Delaware QSO Party

1700Z Sat. to 2300Z Sun., Sept. 27-28

The Delaware ARC is again sponsoring this party with rules the same as they have been for the past couple of years.

Stations may be worked once per band and mode for QSO and multiplier credit.

**Exchange:** QSO no., RS(T), and QTH. County for DE stations, ARRL section or country for others.

**Scoring:** DE stations score one point for each QSO. Multiply total by number of ARRL sections and DX countries worked. Others get 5 points for each DE contact. Multiply total by the number of DE counties worked on each band and on each mode (maximum of 36 multipliers possible). There are three DE counties: Kent, New Castle, and Sussex.

**Frequencies:** CW—1805, 3740, 7070, 14070, 21070, 28070. SSB—1815, 3975, 7275, 14325, 21425, 28650. Novice—3720, 7120, 21120, 28120.

**Awards:** Appropriate awards will be given to the top scorers. In addition, certificates will be awarded to all stations working all three Delaware counties. Include two 22¢ stamps and an address label with your application for the "WDEL" award.

Mailing deadline for all entries is October 31st, and they go to Charles Sculley, AE3H, 103 E. Van Buren Avenue, New Castle, DE 19720. Include an SASE for a copy of the results.

## California QSO Party

1600Z Sat. to 2200Z Sun., Sept. 27-28

This year's party is again being sponsored by the Northern California Contest Club. All efforts are being made to activate all CA counties and make this the most successful of all state parties.

Operating time is limited to 24 out of the 30-hour contest period for single operator stations. Multi-operators may use the full 30 hours. Off times must be at least 15 minutes and clearly indicated in the log.

The same station may be worked on each band and mode, and CA stations may contact other in-state stations for QSO and multiplier credit. CA mobiles may be worked in each county change.

**Exchange:** QSO no. and QTH. County for CA stations; state, province, or DX country for others.

**Scoring:** Two points for phone contacts; 3 points on CW.

**Multiplier:** CA stations use states (50) and VE call areas (8). VO/VE1-7 and VY1/VE8. Out-of-state use CA counties (maximum of 58).

**Final Score:** Total QSO points times the sum of the multiplier.

**Frequencies:** 160 meters through 2 meters, except 30 and 12 meter bands. CW—1805 and 50 kHz up from band edge. Phone—1815, 3850, 7230, 14250, 21300, 28500. Try CW on the half hour, 160 at 0500Z, and 80 at 0700Z.

**Awards:** Certificates to the highest scoring single operator in each state, province, and country. Also each CA county and stations scoring 100 or more QSOs.

Trophies galore. Single operator, top three out-of-state, and CA top three. Also CA county expedition, and the WA6VEF special award for the CA station making the most CW QSOs. Multi-single and multi-multi winners in CA and county expedition. And the CA mobile team making the most QSOs.

Include a summary sheet showing the scoring, etc., a dupe sheet if you make more than 200 QSOs, and a large SASE for a copy of the results.

Mailing deadline is November 1st and entries go to: NCCC c/o Gary Caldwell, WA6VEF, 1830 Polk Street, Concord, CA 94521.

## Classic Radio Exchange

2000Z Sun. to 0300Z Mon., Sept. 28-29

This is the fall edition of this unusual event. The format is still the same as it has been for the past years. Object is to restore and operate older equipment with like-minded hams, not required in the exchange, but a distinct advantage in the scoring.

A classic radio is any equipment at least 10 years old *(25 years would be more realistic, Stu—ed.)*

The same station may be worked on each band and each mode, and with different equipment combinations. Noncontesters may be worked for credit also.

**Exchange:** Name, RS(T), QTH, receiver and transmitter type, and other interesting conversation.

**Scoring:** Multiply total QSOs by total number of receivers, transmitters, state/provinces/countries worked on each band and mode. Multiply that total by your Classic Multiplier, the total age of all receivers and transmitters used. Three

QSOs minimum per unit. Multiply age by two if gear is a transceiver.

**Frequencies:** CW—60 kHz up from low edge of band. Phone—3910, 7280, 14280, 21380, 28580. Novice/Tech.—3720, 7120, 21120, 28120.

**Awards:** Certificates and appropriate memorabilia are awarded for highest scores, longest DX, exotic equipment, best excuses, and other unusual achievements.

Send logs, comments, anecdotes, etc., to: Stu Stephens, K8SJ, 1407 Hollyrood Road, Sandusky, OH 44870. Include a large SASE for a copy of the "Classic Radio Newsletter" with the results.

## Middle of The World Contest

0000Z Sat to 2359Z Sun., Oct. 4–5

This is a new one organized by the Guayaquil Radio Club of Equador. It's the world working the Equadorians on 7 MHz and 14 MHz SSB only.

There will be four "Middle of the World" stations on the Equator line active during the contest: HD1GRC, Equator Line; HDØGRC, Cayambe Volcano; HD7GRC, Equadorian Amazon; and HD8GRC, Galapagos Island. These are worth 20 points per QSO.

**Classes:** Single operator on 7 MHz or 14 MHz or both bands. Multi-operator, both bands.

**Exchange:** RS plus a 3-digit QSO number starting with 001.

**Scoring:** For non-Equadorian stations.

*Points:* Contacts with HC stations, 10 points; with HD stations, 20 points.

*Multiplier:* Is rather unusual. It's described as "the sum of the numeral of HC zones worked, only once per band." There are 8 call areas in Equador, HC1–HC8. Therefore, HC1 would be one multiplier and HC8 would count as 8 multiplier points. A possible 36 per band.

*Final Score:* Total QSO points on each band times the multiplier from that band.

**Awards:** A trophy and diploma for first- and second-place winners on 7 MHz, 14 MHz, and both bands for single operators. And first- and second-place on both bands for multi-operator winners. There is a special award for stations making 30 or more HC contacts, and a minimum of 3 HD contacts. Work at least 5 HC zones and you will be awarded the "WHC" certificate.

Use a separate log for each band and include a summary sheet and a signed declaration with your entry. Include 5 IRCs to cover cost of any award.

Logs must be received by December 31st and go to: Middle of the World Contest, Guayaquil Radio Club, P.O. Box 5757, Guayaquil, Ecuador.

## VK/ZL/Oceania DX Contest

SSB: Oct. 4–5 CW: Oct. 11–12
1000Z Saturday to 1000Z Sunday

This year's contest commemorates the 60th Anniversary of the NZART, and the 51st year of the VK/ZL contest. The following rules are for overseas stations

A maximum of 12 hours operating time is permitted in the 24-hour contest period, to be taken in one-hour blocks based on the "even hour to even hour" (1000Z to 1100Z/1300Z to 1400Z, etc.) in minimum periods of one hour. (SSB and CW are separate contests.)

Use all bands, 1.8–28 MHz, except WARC bands.

Oceania stations can work anyone. The rest of the world can work VK, ZL, and Oceania stations only. The same station may be worked on each band for QSO and multiplier credit.

**Exchange:** RS(T) plus a three-figure QSO number starting with 001.

**Points:** Two points per QSO for everyone.

**Multiplier:** Each VK/ZL/O prefix worked on each band.

**Final Score:** Total QSO points from all bands times the sum of the prefix multiplier from each band.

**Awards:** Special large, color certificates to top scorers in each country. Plaque to each continental winner. A participation certificate to all on request (1 IRC, please).

There is an SWL section. Only VK/ZL/O stations are logged. Call of station being worked and RS(T) being sent must be reported. Scoring same as above but both SSB and CW scores are combined for final score (maximum total of 24 hours)

Use a separate log sheet for each band and underline each new VK/ZL/O prefix as it is worked on each band. Include a summary sheet showing the scoring and other essential information, and the usual signed declaration that all rules and regulations have been observed.

This year your logs go to: NZART Contest Manager, Jock White, ZL2GX, 152 Lytton Road, Gisborne, New Zealand

LIGHTNING ARRESTER

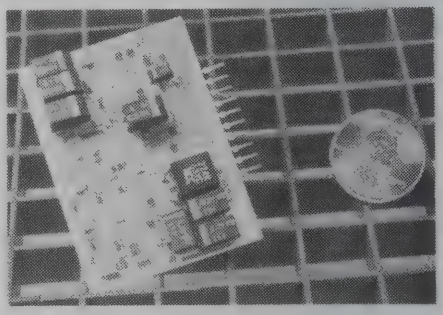
**The Cushcraft Corp. announces four models of lightning arresters with fast action gas discharge elements with power rating of 200 W or 2 kW and type N or UHF connectors. They are precisely manufactured with low insertion loss from 2 - 1000 MHz. Easy replacement cartridges are available.**

10 EL. YAGI FOR 928 MHz

**Cushcraft Corporation has announced a new 10 element high performance Yagi antenna in the 928 - 968 MHz frequency range. It features solid aluminum elements and boom. The new design folded driven element is moisture sealed and it has a convenient pigtail feed with 50 Ω N connector.**

**For more information on above products contact: Cushcraft Corp. PO Box 4680, Manchester, NH 03108, 1-800-258-3860.**

SSB VOICE OPERATED SQUELCH



**NAVAL Electronics announce a new commercial grade voice operated squelch to upgrade solid state SSB receivers and transceivers.**

**The tiny 11 pin module utilizes the latest state of the art in surface mount and thick film hybrid circuit technology. It easily installs in most modern receivers and transceivers to provide commercial communications grade squelch operation that is immune to noise, static crashes, heterodynes and steady tones.**

**The circuit incorporates a syllabic rate detector which provides for superior squelch operation compared to the AGC type squelch supplied with most modern transceivers. This VOS is most helpful where a single channel must be monitored on a continuous basis as it greatly reduces operator fatigue.**

**For more information contact: Naval Electronics Inc., 5417 Jetview Circle, Tampa, FL 33634. Phone (813) 885-6091**

WORLD TOP BAND AID

**A computer generated up to date listing of 160 meter operating privileges on SSB and CW for 315 countries given in alphabetical prefix order is available from Dennis, N7CKD, 4248 A Street SE, Sp. #609, Auburn, WA 98002. This listing is updated quarterly and costs $3 for USA and $4 for DX and overseas stations, in US funds.**

OUR NEW BABY:

# The IRSA WRC Contest

Yuri Blanarovich, VE3BMV/W2

What is the WRC Contest? Another contest on the crowded calendar? Another QSO party? Another "me versus the rest of the world" contest?

None of the above. The WRC - World Radio Championship contest is a world wide type of contest with rules allowing fair competition and comparison of skills and scores across the world. Many contesters would like to see changes in the scoring system of the existing contests. Those contests started way back, when things were different. They developed a tradition and the all time records that we all respect.

There was always that question: who is the better operator, W3BGN, NP4A, OH2BH, OK2RZ or ZL1AMO? You were not able to tell unless they all fired up a portable CT3 in the same contest. The competition had to be confined locally because of the scoring system which discriminates against the North American, the European, the US, the WØ stations.

The only way to "rectify" some of our problems is to start fresh, not bound by the traditions and upsetting all those who love the "old" contests (myself included). Ideas were kicked around, opinions solicited. The result was what is now known as the First IRSA - RADIOSPORTING World Radio Championship Contest which is to be held this year on the first weekend of October. We hope that the rules are close to ideal as it is possible.

Let me briefly go through the rules as they now stand and try to elaborate on the reasons why they are the way they are.

Contest Date: it was very hard to pick a date when there was no contest on that particular weekend. Fall is better than Spring, it's warmer for antenna work, and good air fare and accommodation rates for flying south for the contest weekend. The date should be close to the equinox so that all of us around the globe have more or less the same propagation patterns (the day/night length is the same, grey line). The end of September seems to be the best time for the world type of contest. This year we were colliding with the Scandinavian Activity Contest and the California QSO party, but things were sorted out for now and for the next year we are hoping to work out some kind of solution with our Scandinavian friends and have the last weekend of September.

A 24 hour time duration for the intensive contest appears to be the best; just enough time to work all the serious contest stations. For the single operator stations we allow a two-hour off time, to be taken in one or two rest breaks. This should help to get some rest or repair a blown rig and compensate for the differences in propagation between the northern locations and "equatorials." Multi operator stations can run the full 24 hour period.

We decided to try phone and CW on the same weekend. This should make it interesting especially for those who operate both modes. Just when your throat gets sore, you can switch to CW. You can even say to the multiplier: "See you on CW!" Here is a chance to have a good CW contest during the prime propagation season.

Who can you work? Every licensed ham radio operator around the world, including your own country. Mobile stations count too. A mobile is also counted as a multiplier, one for each group: land, maritime and aeronautical mobile. You could be operating mobile from different countries, but you would still count as a multiplier of only one- "mobile" and not for each country you are mobiling through. If you are operating mobile and from another country, make sure you sign i.e. "mobile W2" on phone, or VE3BMV/W2/M on CW. The mobile categories can be seen as three "countries" spread all over the world. To be a bit more precise, the mobile stations are defined as a stations having all their equipment and antennas installed on a vehicle, using the vehicle's power source. This means not parking next to a broadcasting tower and using the commercial power means. The vehicle must be capable of moving and operating with radio equipment on board. Planning to operate from the Space Shuttle, Soyuz, a balloon or maybe the Love Boat? You just might have a big advantage. In other contests countries with a heavy amateur radio population are penalized just for having too many hams and were not able to work them for point credit. No more! Work them all now.

This is a HF type of contest and six HF bands are allowed to be used. We are excluding all the "new" WARC bands mainly because many contesters feel that to have six bands is "bad" enough. Perhaps in the future we could add the remaining bands, but just for the single band competition and keep the old six bands for the "allbanders." For now it is: 160, 80, 40, 20, 15 and 10 meter bands.

The number exchange is the signal report and the consecutive QSO serial number starting with 001. Use three digits to keep it uniform. This gives something to receive besides the callsign and 59 in order to claim a valid QSO. It also gives one an idea as to how the competition is doing. Should we include in our exchange one more character that would indicate what category the station operates? (599001A)

You will get one point for each correctly sent exchange and one (or two) for each correctly received exchange on phone (or CW). This means that if you have the callsign of the BY1PK correct but you goofed in receiving his number or report, you can still claim one point for the contact and count him as a multiplier (providing he has your call and number logged). The complete phone contact is worth two points and the complete CW contact is worth three points. This will allow a relative comparison of phone and CW scores, with CW rates being lower. This should be also a equalizing factor for the combined phone and CW competition. The same station can be worked only once on each band and mode for point credit. For all band entries the total number of QSO points is a sum of points for valid QSOs from all bands.

In the multiplier area we were trying to come up

with the magic solution of giving about the same number of multipliers to those living on the "busy" continents. Earlier, VE3KZ's study about the GEO-DX index and sensible system pointed to using the countries and geographical areas in some of the large countries. The multipliers are DXCC countries (even operations not recognized by the ARRL count: 1Z9, C9, etc.): minus USA, Japan, Australia, Brazil, Canada, European and Asian RSFSR (USSR republic), plus: 10 call areas of continental USA; 10 call areas in Japan; 8 call areas in Brazil; 8 call areas in Australia; 8 VE areas, VO1, VO2, VY1 in Canada; six RSFSR (old UA1, 3, 4, 6, 9, 0, or the new variety of UV, UW, UZ, UK) areas and three mobile groups (/M, /MM, /AM) on each band. Please note that we have added Brazil's call areas to our multiplier count since the last version of the rules. The total multiplier count for the all band entry is a sum of all the multipliers from all bands (the same country can be counted on each band). If the call area of station using "weird" prefix is not clear, just ask what is their QTH. (That will teach them to use weird prefix. Hi)

If your older version of the WRC rules and multiplier sheet did not include Brazilian call areas and mobile groups, please add them in: PY1 - PY8 (or PT, ZW, etc.), /M, /AM, /MM.

The final score for the all band entrants is the result of the total QSO points from all bands multiplied by the total multiplier count from all bands. The single band operators multiply the QSO points from the band they are claiming by the total of multipliers worked on this band. Other bands may be operated too and logs submitted.

There are actually three "contests:"

1. Combined (phone plus CW scores)
2. Phone
3. CW

Each of those have three power groups:

1. High Power (1000W),
2. Low Power (100W)
3. QRP (5W of output power)

Each of the above groups will have the following categories:

Single Operator, All Bands and Single Bands;
Multi operator, Single and Multi Transmitters;
Club Competition

Results of the contest will be listed by scores in each category in the world. Each country with more than five participants will be mailed results of the top scores in the world plus their national results by categories.

The club competition should be very interesting. A club can claim one score per category in the selected power group a total of 9 scores per mode, 18 all together. The club could have more than one station operating in each category and then select the highest claimed score for the club competition. Also, a club can enter a team in each power group. If there is enough participants, we can have the overall "Super Club" category using the addition of points from all three power groups. The club official must submit the list of stations, their scores and the categories they operated in.

In the Multi Operator, Single Transmitter category we do not have the time limit on band switching. The restriction is to use only one transmitter at the station. If you can switch bands with it quickly, that's fine, but no separate transmitters or transceivers operational at the same time. This allows more flexibility and better utilization of operators and equipment. Some argue that this is not enforceable and that we should have the time limit on band changes as in CQ contests. What do you think?

Besides the awards for the winner of each category in each country a one year subscription to RADIOSPORTING magazine will be awarded. Trophies can be won each year, there is no time limitation. 10 lucky winners of a one year RADIOSPORTING subscription will be drawn from all the logs received, regardless of the score. There are some other surprise rewards in the works and they will be announced as they are confirmed.

Entrants are encouraged to use the official WRC forms kit, which helps to speedup the processing of results. We are reproducing the forms in this issue. Please feel free to copy them and pass them to your friends. More forms could be obtained for SASE, from RADIOSPORTING, Box 282, Pine Brook, NJ 07058. Those using computers could submit a diskette as our computerized log checking is introduced. See more on that in my recommendation for computerized log standard in the previous issue of RADIOSPORTING.

Logs should be sent to our WRC Contest Manager

Walt McGugan, W3FG,
PO Box 7, Odenton, MD, 21113-0007, USA.

We will allow one month for the mail to arrive after the mailing deadline of 30 days. Results should be available by the end of the third month after the contest date. You will know the final results in the same time frame as others will tell you high claimed scores. We are ready to put the computers through their paces and bring the results fast!

This is our first year and we would like to get feedback from you, especially the old contest tigers, on how to make the rules better and more interesting. We want to finalize the rules during the first two years after which they will be cast in stone.

We are looking for more trophy donors from the manufacturers, dealers, clubs and individuals. Sponsoring a trophy is the best way to promote your name and indicate that you or your company are serious in supporting the ham spirit, quality and sportsmanship in amateur radio. The cost of a trophy and mailing is $45. Please contact us if you decide to become a sponsor.

We hope that WRC will become your favorite contest and that all of you will enjoy the fast paced and dynamic race for the world, country or your club champion title. Good luck and see you all in the pileups. (VE3BMV)

*The best place to meet the world famous DXers and contesters is at the RADIOSPORTING booth. Dave, G3SZA (left), with 200 countries on 160 and Pedro, NP4A, a holder of many contest records, are two of the finest sportsmen around.*

# 1st IRSA WORLD RADIO CHAMPIONSHIP

Phone: Saturday October 4, 1986, 0000 to 2400 GMT  CW: Sunday October 5, 1986, 0000 to 2400 GMT

The single operator stations may operate no more than 22 hours out of the 24 hours on each mode. A minimum of two hours of rest time may be taken in one or two rest periods. All multi operator stations can operate the full 24 hour periods.

1. Objectives: For amateurs around the world to contact other amateurs in as many countries as possible. All contacts with fixed or mobile licensed amateur radio stations around the world, including own country, count.

2. Bands: 1.8, 3.5, 7, 14, 21, 28 MHz

3. Number exchange: Signal report plus the consecutive QSO number starting with 001. (59001 on phone, 599001 on CW)

4. Points: Each correctly sent exchange is worth one point; each correctly received exchange is worth one point on phone and two points on CW; a total of two (three on CW) points for each error free contact. The same station can be contacted only once on each band and mode for a valid point credit. Contacts with own country count also.

5. Multipliers: On each band a multiplier of one for each different DXCC country contacted, plus one for each call area in the following countries: Australia (VK1 - 8), Brazil (PY1 - 8), Canada (VE1 - 8, VO1, VO2, VY1), Japan (JA1 - 0), European RSFSR - USSR (UA1, 3, 4, 6), Asian RSFSR - USSR (UA9, 0), USA (W/K/N etc. 0 - 9). (Do not count VK1 as a VK - country, too.) Also, a multiplier of one for each of the land, maritime and aeronautical mobile group (/M, /MM, /AM). Stations (except mobiles) operating from another call area must sign their call with slash and a number of the area. (Example: K4VX/0, WØAIH/9, VE6OU/3)

6. Scoring: The final score is the result of the total QSO points from all bands multiplied by the total multipliers from all bands.

7. Categories of competition:

H. High Power - stations using the maximum legal limit up to 1000 Watts output (2000 W PEP)

L. Low Power - stations using the maximum output power of 100 Watts (200 W PEP)

Q. QRP - stations using the maximum output of 5 Watts (10 W PEP)

In each of the above power groups there are the following categories:

A. Single Operator - All Band

B. Single Operator - Single Bands: 160, 80, 40, 20, 15, 10 meters.

C. Multi Operator - Single Transmitter

D. Multi Operator - Multi Transmitter

E. Club Competition - Combined

Combined Phone and CW scores will be used for the main competition category. Phone and CW results will also be listed and awards issued.

Category A and B can be operated by a single operator, without any other assistance from other operators, repeater nets or bulletin boards.

Category C and D includes club stations, stations operated by more than one operator and single operator stations using repeater, spotting nets or any other assistance while operating.

The single transmitter category stations may use only one transmitter which is connected to the power source during the contest. In case of failure, it may be replaced by another transmitter. Spotting operators may use receivers or transceivers with transmitter disabled only.

The multi transmitter category stations may operate one transmitter per band simultaneously. All transmitters must be located within a 500 meter diameter or within the property limits of the station licensee's address. The antennas must be physically connected by wires to the transmitter.

Category E - Club Competition entries may claim a maximum of one station per category, in a selected power group, on each mode (maximum 18 - nine on phone and nine on CW). The final club score is the addition of individual highest scores made by the club members on both modes. Expeditions and mobile operations by the club members can also be counted. The club official must submit a list of stations, their category and scores. Each power group will be judged separately.

8. Awards: First place certificates will be awarded in each category and power group in every participating country, call area and mobile group. One station having the highest combined score from each country will receive a free one year subscription to RADIOSPORTING magazine.

9. Trophies and plaques will be awarded to the highest scoring stations in all categories. If one station would qualify for more than one trophy, the second less significant trophy will go to the next eligible station. Individuals, clubs, societies and companies are encouraged to sponsor a trophy.

10. Log instructions: All dates/times must be in GMT. All the sent and received exchanges must be logged. A multiplier should be indicated only the first time it is worked on each band. Logs must be checked for duplicate contacts, correct QSO points and multipliers. Do not use separate sheets for each band, except for multi operator, multi transmitter stations who should keep separate logs and numbering per band. Single operator stations must clearly mark the rest periods in the log and should indicate the total operating time on the summary sheet. A sample contest form kit is available from IRSA for a SAE and $1 or 3 IRC.

All participants are encouraged to send the log in regardless of their score. They are needed for checking purposes.

A one year subscription to RADIOSPORTING magazine will be awarded to the 10 stations selected by a draw from the logs received.

11. Deadline: To be included in the results, all contest logs must be in hands of IRSA WRC Contest Committee by December 31st. Logs must be mailed not later than 30 days after the contest to:

**IRSA WRC Contest Chairman, W3FG,**
**P.O. Box 7, Odenton, MD, 21113-0007,**
**USA**

## LIST OF TROPHIES AND DONORS

COMBINED

**World Champion**
**Multi operator, Multi transmitter,**
W2PV Memorial Trophy donated by IRSA

**World Champion**
**Single operator, Single band**
Yuri Blanarovich, VE3BMV Trophy

**World Champion 160 m**
**Single operator**
John Summach, VE3MFA Trophy

PHONE

**World Champion**
**Multi operator, Single transmitter**
Greater Milwaukee DX Assn.

**Canadian Champion**
**Single operator, Single band**
George Furtado, VE7EIK Trophy

CW

**World Champion**
**Multi operator, Single Transmitter**
RADIOSPORTING Trophy

**World Champion**
**Single operator, All band**

The national amateur radio societies are encouraged to sponsor trophies for the winners of their countries.

CALL_____ WRC CONTEST _____ 19__ Page ____ of ____

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Notes:

Page: _____ _____ _____
QSOs Pts. Mult.

# IRSA WORLD RADIO CHAMPIONSHIP

Call _____ Country _____

| Phone QSOs x2 | Points | x Mult. | = Score | Band | CW QSOs x3 | Points | x Mult. | = Score |
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| | | | | 1.8 MHz | | | | |
| | | | | 3.5 MHz | | | | |
| | | | | 7 MHz | | | | |
| | | | | 14 MHz | | | | |
| | | | | 21 MHz | | | | |
| | | | | 28 MHz | | | | |
| | | | | All Band | | | | |

Rest period (Single OP) 1. _____ to _____
2. _____ to _____
Operating time: _____ hrs ____ min

POWER GROUP: H (1000W) L (100W) Q (5W)

Single OP: _____ Multi OP: _____

Single Band ___ MHz ☐ Single TX ☐

All Bands ☐ Multi TX ☐

Operators: _____

Rest period (Single OP) 1. _____ to _____
2. _____ to _____
Operating time: _____ hrs ____ min

POWER GROUP: H (1000W) L (100W) Q (5W)

Single OP: _____ Multi OP: _____

Single Band ___ MHz ☐ Single TX ☐

All Bands ☐ Multi TX ☐

Operators: _____

COMBINED PHONE + CW SCORE (Must be same category) ☐

MEMBER OF: _____ CLUB

EQUIPMENT: _____

ANTENNAS: _____

COMMENTS: _____

*This is to certify that in this contest I have operated my transmitter within the limitations of my license and have observed fully the regulations and rules of the contest.*

*Date:* *Signature:* *Mail within 30 days to:*

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*IRSA WRC, W3FG*
*PO Box 7,*
*Odenton, MD, 21113-0007,*
*USA*

*Name*_____ _____*Call*_____

*Addr.*_____

*City*_____ _____ _____

*Country:* _____

WRC 198 PHONE CW CALL: _____

EUROPE

| | 1.8 | 3.5 | 7 | 14 | 21 | 28 |
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| SVc | | | | | | |
| SVr | | | | | | |
| SY | | | | | | |
| T7 | | | | | | |
| TA | | | | | | |
| TF | | | | | | |
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ASIA

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| A6 | | | | | | |
| A7 | | | | | | |
| A9 | | | | | | |
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| EP | | | | | | |
| HL | | | | | | |
| HS | | | | | | |
| HZ | | | | | | |
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| JA2 | | | | | | |
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| JDm | | | | | | |
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| S2 | | | | | | |
| UA9 | | | | | | |
| UAØ | | | | | | |
| UD | | | | | | |
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| UG | | | | | | |
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| UJ | | | | | | |
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| UM | | | | | | |
| VS6 | | | | | | |
| VU | | | | | | |
| VU7a | | | | | | |
| VU7l | | | | | | |
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| YA | | | | | | |
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| ZC4 | | | | | | |
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| 4S7 | | | | | | |
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| 9M2 | | | | | | |
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AFRICA

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| ZS | | | | | | |
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SOUTH AMERICA

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| PYØp | | | | | | |
| PYØt | | | | | | |
| PZ | | | | | | |
| VP8f | | | | | | |
| VP8g | | | | | | |
| VP8o | | | | | | |
| VP8s | | | | | | |
| VPsh | | | | | | |
| YV | | | | | | |
| ZP | | | | | | |
| 8R | | | | | | |
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OCEANIA

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| VR6 | | | | | | |
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# secrets of successful low-band operation: part 2

Careful planning, quality components give DXing's "big guns" the competitive edge

**This concluding section** examines site requirements, lightning precautions, construction, maintenance, performance, and propagation. In addition, some of the most competitive stations reveal their plans for further improvements.

## siting

Though most stations surveyed opt for the highest, quietest location possible, several work within the same constraints that the majority of us (the "little pistols") must deal with. Those surveyed were asked to describe their sites in terms of near and far field topography, obstructions, and noise.

**Near field topography** is a description of the contours of land in the immediate vicinity (i.e., within approximately one wavelength) of the antenna system. Of those who responded to this question, 83 percent described their near field topography as being flat or having a negative slope; the remaining 17 percent indicated a positive slope. It's important to remember that especially on the lower bands, optimum launch angles often exceed 30 degrees, so perhaps that mountain range in your backyard doesn't have as deleterious an effect as it might on the higher HF bands.

**Far field topography** in which the land rises at some distance should have an even less pronounced effect on the reception and transmission of low-band signals. However, the actual slope is important (in both the near and far field) and can be determined through the use of United States Geological Survey 7.5-minute (1:24,000) or 15-minute (1:62,500) maps.* Those surveyed described their far field conditions in basically the same terms as near field: flat or negative horizon. For example, they used the words "flat to ocean," "flat many miles," "mountains 26 miles away," "top of hill," "top of ridge," "flat and drops off," "flat to within 1/2 mile in all directions," and "80 meters above local terrain." So you see what most of the big guns have in common: a good site — topographically speaking, at least.

**Obstructions.** In terms of obstructions on those sites, the worst offender appears to be trees. Yet many of the low-band installations depend on these trees for supporting wire antennas. To date I haven't seen any definitive studies indicating whether the presence or absence of trees greatly affects patterns or performance of low-band antennas. (Any reader who has information on this subject, please contact me.)

Many of those surveyed indicated "none" when asked about obstructions; it's no accident that the FCC at its various monitoring facilities has extremely stringent requirements with regard to the height and location of any obstructions (even in what's defined as the far field). Apparently development of many of the high-performance stations involved site examination and evaluation as a first necessary step. An example of a good near and far field site is seen from the boom's perspective of W6NLZ's 80-meter Yagi (**fig. 1**).

**Noise.** The oft-spoken adage, "If you can't hear them, you can't work them," certainly applies to low-band operation. (There are some who have a particular knack for working stations that just aren't there, but that's another story). The limiting factor in the reception of signals is noise, be it man-made or atmospheric.

*Maps for areas east of the Mississippi are available in the United States from the United States Geological Survey, 1200 South Eads Street, Arlington, Virginia 22202. Maps for areas west of the Mississippi may be ordered from the United States Geological Survey, Box 25286, Federal Center, Denver, Colorado 80225. USGS maps are also sold by more than 1650 commercial dealers listed in the pamphlet, "Index to Topographic Maps," available without charge from either USGS distribution center listed above.

**By Rich Rosen, K2RR,** Editor-in-Chief, *ham radio*

After reviewing all the responses and assigning a range of 10 (no manmade noise whatsoever) to 1 (terrible), the average value appears to be around 8. Although most of the high-performance stations have a quiet noise environment, one of the top stations surveyed — with over 300 countries worked on 80 meters and well over 100 on 160 — described his location as "high noise," with a 115-kv high-voltage line within 0.5 mile. Don't give up hope for successful low-band operation if you have a high noise level. If it's the result of faulty electrical equipment, power companies can be helpful in tracking down the source of the noise and correcting the problem.

Other sources of interference can sometimes be located using portable equipment (for example, a pocket AM radio with a ferrite loop or circuit designed especially for that purpose). Noise cancellation techniques have been used for many years with some degree of success.[1,2,3] Many who use directional arrays (phased verticals, for example) probably notice that switching the antennas around produces a noticeable increase or reduction in noise level. Sometimes it's better to point the antenna's null at the interference, trading off a dB or two of gain from the preferred signal direction. A suggestion from some of the veteran 160-meter operators is for newcomers to be aware of noise from TV horizontal oscillators, either your own or your neighbors'.

## lightning

The expression, "Into each life a little rain must fall" could be particularly applicable to big guns, whose large antenna systems are more exposed to the elements than others. Lightning poses a real threat to some of these stations, with their high towers and negative horizons. Precautions can be taken, however, and the danger lessened.

Two locations worthy of attention are in the shack and out at the antenna. Precautions taken at the shack include the simple expediency of disconnecting all transmission lines, grounding the equipment and/or antennas or a combination of both. Outdoor precautions include using antennas that are permanently DC grounded by design; for example, the base of a shunt-excited vertical is at DC ground. One method of DC grounding a horizontal wire antenna would be to attach a quarter-wave shorted stub (or odd multiple of a quarter wave) across the dipole's feedpoint and ground it at the shorting bar at the opposite end. This technique, primarily used to drain off static charge, works well only if the antenna is used over a narrow band of frequencies. Otherwise the short reflects back to the feedpoint as other than an open circuit and must be accounted for (in matching). Some of those surveyed were quite satisfied that the grounding system designed as part of their antenna installation would prevent any lightning damage.

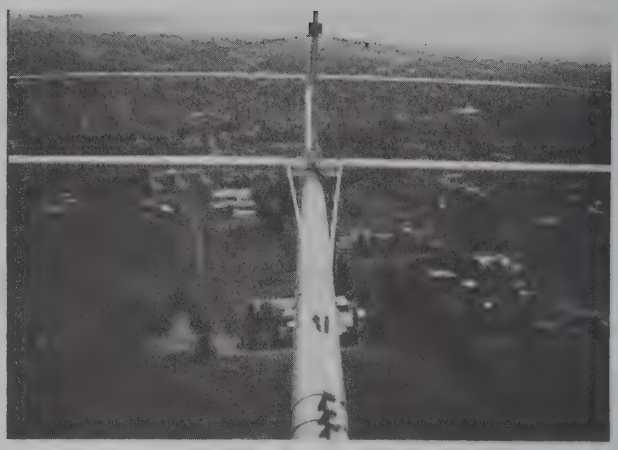

**fig. 1. Sighting along boom of a KLM 4 element Yagi reveals unobstructed near field topography.**

Even if a lightning discharge should occur at your antenna, shack damage is not inevitable. One "big gun" responding to the survey said he felt that by locating the antenna a considerable distance from the shack, the danger of damage occurring at the station end was greatly lessened.

Those who have taken direct strikes reported losses ranging from only a fuse box on one hand to almost total destruction of their home, with walls and windows blown out and ceilings collapsed. Anyone who's ever experienced even a very close lightning strike knows that this is a subject to be taken seriously, with every reasonable precaution applied.

## construction

It's one thing to design, on paper, a three-element 80- meter Yagi. It's quite another matter to build, install, and keep it up. Wire antennas, though easier to install, still require an investment in quality materials, labor, and time.

Several of those surveyed built their own rotary Yagis. Noel, VE2HQ, described his efforts to construct his three-element, 515-pound, 43 square foot (windswept area) Yagi, the result of three years of planning, determination, and hard work, marked by several setbacks.

Working all winter in his basement, he built the linearly loaded elements, starting with 3-inch O.D. tubing and down to 0.5 inch in increments of 0.25 inch (11 different diameters). The linear loading was added 125 inches from the butt of each element by cutting the 2-inch diameter section, inserting a fiberglass tube and winding the coil with copper-clad wire. Additional element support was provided by double element guying on each side with Phillystran.**

The boom consisted of two 35-foot long flag poles

****Phyllystran** is a registered trademark of Philadelphia Resins Corp.

fig. 2. Vertical member and stays prevent element droop.

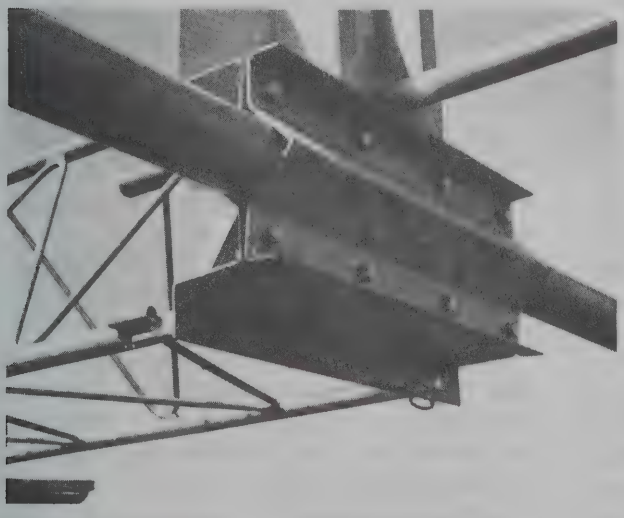

fig. 3. Method of attaching full length elements to boom involves use of 8 bolted through plate for mechanical rigidity.

(4.5 inch O.D., 0.25-inch wall) resulting in an overall length of 65 feet. At this point Noel had to consider what type of tower could support this heavy antenna. He purchased a commercial 60-foot tower designed for supporting large microwave antennas and fabricated a 50-foot triangular extension measuring 33 inches on a side to be mounted on top of that.

The first time Noel installed his antenna at 110 feet, it resonated too high in frequency and had to be taken down. It was made to resonate at 3625 kHz at 15 feet above ground so that it would resonate at 3785 kHz at its final height.

Chris, I5NPH, erected an even larger three-element Yagi using full-size elements. A careful examination of **fig. 2** provides an appreciation of the size of the components used in this antenna. The structure at the right that looks like a tower is the end of the boom; the large tubing at the left, which looks like a large boom, is one of the parasitic elements. Notice the size of the vertical strut used to support the long elements. **Figure 3** shows the method used to attach the parasitic elements to the boom. When one considers the difficulty of installing a completed antenna, eight bolts in the element-to-boom clamp don't represent "overkill."

While W6RJ put his three-element KLM Yagi together on the tower, K3ZO completed his Yagi's construction on the ground and raised it with a 164-foot crane. WA1EKV used ropes strung from his tower in a vee to slide and pull his Yagi to the top.

Because wire antennas tend to break at the worst times, a quick means of lowering and raising them is necessary. Ropes, pulleys, and continuous halyards are successfully used by some to provide this capability. In addition, if you want your antenna to stay up, use the best quality material. One of those surveyed has had success with white/blue marine rope. Polypropylene rope, though less expensive, disintegrates after exposure to sunlight. It might take several years, but it *will* deteriorate; be sure to wear gloves when working with old polypropylene.

## installation and maintenance

Two more practical questions were asked of those questioned in this survey: "What precautions did you take in installing your system to make sure it would stay up?" and "What periodic maintenance procedures do you follow?"

In general the consensus of opinion can be summed up in a single word: *quality*. Though topnotch material costs more initially, it delivers years of consistent good performance and pays for itself.

The "big guns" offered specific advice on the subject of non-wire antennas (rotaries and towers). Here's what they recommend:

- Tighten all guy wires and clips to specification.
- Choose all materials carefully — anything that isn't aluminum or stainless steel will rust.
- Paint all towers and masts.
- Lubricate all moving parts properly.

With regard to wire antennas, they advise the following:

- Use quality halyards — for example, white/blue marine rope.
- Use steel line for the halyard section that goes over tree branches.
- Avoid the use of galvanized steel wire for radials.
- Protect all critical connections with a good weather-resistant sealant such as Coax-seal.®

Periodic maintenance procedures include:

- Tightening of guy wires, clips and hardware.
- Lowering wire antennas with pulleys to check the condition of the halyards, wire, and insulators.
- Cleaning insulators with a rag and water.
- Clearing foliage away from verticals.
- Repairing thin wire ground radial systems.
- Protecting systems with the same paint used on the undersides of boats.

Many of the big guns found that they experimented so frequently with new antennas that the short life cycle of their old antennas precluded the need for periodic maintenance.

## performance

The next question posed was, "How does your present antenna system perform in comparison to others — either your own or the competition's?" In general most felt that the latest was the best. Specifically:

**K3ZO** found that his three-element KLM rotary at 140 feet was 25 dB better than a half-wave sloper and up to 8 dB better than his previously used three-element, 80-foot boom delta loop beam.

**OH1RY** found his full-size three-element Yagi outperformed a dipole by 20 to 30 dB on the long path shot to the United States.

**4X4NJ** uses four tilted verticals on 160 meters, fed in various phase combinations with passive reflectors to create an electronically rotatable vertical beam system. He feels "it's almost as good as having a full rosette of Beverages, with the added advantage of having a good low-angle rotatable transmitting antenna."

**W2JB**, another 160-meter operator, stressed the importance of being able to *hear*. "Most of the DX runs low power and signals are usually at the noise level. That's where you need your Beverage antennas," he wrote.

**SP3GEM**, who trades off between a vertical and a delta loop, doesn't see much difference between the two in the favored delta loop direction. However, he prefers the vertical in other directions — that is, where the delta loop exhibits a null.

**KG7D**, like many others, believes slopers provide good performance by launching a low angle signal, showing nulls off the sides, and having reasonable feedpoint impedances and consequently high efficiency.

One of the truly big signals from Japan on 80 meters, **JF1IST**, uses the Create Manufacturing CY-703 three-element Yagi and is very pleased with its electrical and mechanical performance. The specification sheet lists its forward gain, F/B ratio and 2:1 VSWR bandwidth as approximately 8.5 dBi, 20 dB and 100 kHz, respectively. JF1IST has his centered on 3.80 MHz, right in the middle of the Japanese SSB window.

**W1NH**, formerly W1SWX, can often be heard pulling out the rarest of stations on 80 meters, thanks to his three slopers and inverted vee from a 100-foot skyhook and six 1000-foot long Beverages. To illustrate its performance, he enclosed copies of QSL cards from VS5MC, HS5ABD (both short and long path) and JT0DAQ — all very difficult shots from the East Coast on 80.

**K5UR** attributes his success on the low bands to a superior receiving capability (Beverages once again). Considering that he holds the *CQ* Worldwide DX Contest U.S. record on 160 meters, his transmitted signal must also be outstanding to be heard above some of his competition on the East Coast. He does mention that his new 130-foot vertical appears to work noticeably better than his old 70-footer.

**YU7PFR's** three-element wire Yagi at 56 feet outperforms his previous single vertical or dipole while providing a 2:1 VSWR bandwidth of 250 kHz. With one of the strongest signals from Yugoslavia, he's consistently heard in the United States.

**SM4CAN** has noticed as much as a 6 dB improvement in signal level using his Bobtail curtain as compared to his gamma fed tower with 120 radials. However, on long path to the United States his delta loop performs better than the Bobtail *during the month of November*.

According to **SM6EHY**, it's possible to have too low an angle radiator. He says that his four-element phased vertical array just doesn't have that extra punch when high angle signals are propagated, and goes on to say that "the greatest advantage in using phased antennas is that you can reduce noise and QRM pickup from unwanted directions to such a degree that you can hear everything on the band."

**VE2HQ** compared his home-brewed three-element Yagi with a sloper at 155 feet and found the Yagi to be superior in terms of signal strength. He also estimated the front-to-back ratio to be 22 dB.

With over 300 countries worked on 80 meters, **W4DR**, in comparing his four-element phased vertical array with other antennas, says he believes that the really high horizontal beams still have the edge. **N4AR** uses a pair of phased Bobtail curtains on 80

meters and finds that the F/B ratio on low-angle signals is often in the 15-20 dB range and the front-to-side is "astronomical." He prefers this antenna over Beverages for receiving as well. He also says that having an antenna with noticeable gain and a very definite controllable pattern has provided him with insights on propagation on 80 meters. He's probably one of the few to have worked Laos (XW8BP) on 80 from the East Coast . . . .

Attributing his success to a two-element delta loop array, **DJ0IA** says he's experimented with other antennas but keeps on coming back to it.

**W1FV**, showing true ham ingenuity, fit a well-designed and constructed phased vertical array into very narrow confines without any compromise in performance. He rates its overall performance on 80/75 meters as excellent. Winner of the single-band category in the 1984 *CQ* WW CW contest, he observed: "The vertical array is the best antenna I have ever used for the difficult paths (central Asia, Japan, deep Pacific, and Indian Ocean)." He has tried many slopers, high dipoles, and delta loops but finds the present configuration to be the best.

**EA8ADP** proves that sometimes a simple antenna can be a top performer if other conditions are met. His inverted vee has accounted for 225 countries worked on 80 meters in less than three years. He can normally be heard in the States when the rest of Europe is barely being copied. His inverted vee is supported at the 33-foot level on a tower atop a 148-foot high building situated on top of a hill.

## propagation

As far as I'm concerned, this has to be one of the most interesting areas considered in the survey. The perspective gained by being able to review responses from different countries, continents — and in general, both ends of a communications path — starts to explain observations made over the years but not understood. I feel fortunate to be the compiler of this information and I'll try to convey some propagational correlations and leave the rest to you. A special vote of thanks is due to **SM6EHY**, who provided an extremely detailed account of his observations made during 20,000 hours of listening on the low bands.

## 160-meter propagation

For those not familiar with 80 and 160 meters, there is a tendency to lump them both together as "those noisy, short-range bands." That static exists on the lower frequencies is undeniable; that the communications range is limited is true sometimes, but not always. How else could one explain stations working over 300 countries on 80 and 200 countries on 160 meters, given the right conditions and activity? Furthermore, 160-meter enthusiasts are quick to point out that there's sometimes a world of difference between propagation modes on 160 meters and on 80 meters, and that one band should not be judged by the performance of the other. **K1MEM** best expressed this when he said "The basic creed is, don't go by 80-meter conditions to judge 160. 160 can be great to Europe or Africa when 80 is poor and vice-versa. QRN on one band is no indicator of the other. Also the beacons from Europe seem to have no relation to Amateur signals."

**K5UR** finds propagation to be best towards Africa and the Indian Ocean in the early evenings. At this time of day he's occasionally observed long path signals from Asia (YB, 9M, . . . ) coming from the direction of South America. The same stations are also heard on a skewed path at a bearing of 235 degrees in the morning. Signals from Russia appear on a bent path with a heading of 75 degrees.

From the northwest, **KG7D** believes that chordal propagation is the mode on 160 when Europe is being heard at his QTH, yet not being copied at other locations in the United States. He believes this occurs when the F1 and F2 layers fail to merge. "It would be nice to know the optimum takeoff angle for chordal propagation. For me it appears medium angle north/south, low to the east, and again medium angle to the west. Frequent openings do definitely occur along the terminator lines, with signals coming from over the poles. Frequently we see enhanced propagation effects from the auroral zone."

**VE7BS** found a good opening occurring to VK almost every day throughout the summer of 1985. It started well before his sunrise and ended well afterwards. The observation of this path, he believes, is largely a function of the operating habits of Australians, pointing out that in June and July, VE7 sunrise occurs at a reasonable time in the VK evening. At other times of the year — for example, when VE7's sunrise occurs at 1430Z — the VKs have already gone to bed . . . thus no communications. But the path may still exist. This is somewhat analogous to a tree's falling in the forest; is a sound made even though no one's there to hear it? The answer is an emphatic *yes*.

**SM6EHY** echoed this same point in discussing the polar path between Sweden and stations on the East Coast of the United States and in the Midwest. Stations can be worked from 0800 to 1200Z on 80. Bjorn believes that the same conditions should hold true for 160 and attributes the lack of contacts to the low level of activity in the northern United States at this time. Bjorn also wishes United States Amateurs would improve their receiving capability; for example, on the 10th of June he failed to attract the attention of W9s after 15 attempts. He also feels that 160 can open up on occasions to a degree that has never been observed on 80 meters. For example, ZL3GQ was 599

+10 dB at 1652Z on December 24 for about 1 minute. The best he's been able to observe on 80 was 589 over both the short and long path.

## 80-meter propagation

Consisting of two DX segments separated by approximately 300 kHz, 80 meters sometimes also acts as if it were two different bands. Conditions can be excellent on the short path to Europe on SSB and poor on the CW portion and vice-versa.

More responses were received for this band than for 160 meters. Consequently the subject is divided into several sections: short path, bent path, long path and other influences.

• **Short path.** For the most part, those surveyed concentrated on the unusual paths either long path, bent, or skewed. Perhaps it's because the normal great circle path is in reality not all that common or at least certainly not as exciting. If one assumes that several "short paths" exist between two locations at the same time and one path is more severely attenuated than the other, then it's reasonable that the latter path (non great-circle) will be observed as the only path and classified as a bent path. For example, suppose a station in New Hampshire is in contact with a station in the U.K., and that they're both using single verticals. If at the time of the QSO the geomagnetic field is disturbed and the normal great circle path, at a bearing of 54 degrees, is severely attenuated, then signals coming from the second path, off the coast of North Africa, will provide the only viable means of communications. This situation, which has often been observed over the past several years from K2RR to the U.K., normally coincides with a fairly high K index. However, even the latter path disappears at still higher values of K approximately 24 to 36 hours after a major solar event. It's at these times that only signals from the South can be copied and usually only unilaterally. A case in point was during the recent Revilla Gigedo dxpedition, **XF4MDX**. It was as if a traveling blanket of absorption was moving from north to south. A few minutes after the fortunate contact, the signal from XF4 simply vanished. One could observe this effect by listening to which stations were able to get through W1 to W2 to W3, etc.

From his location in Louisiana, Mike, **NW5K**, is able to work into Africa between 0330 and 0630 and into Europe between 0600 and 0700Z via the short path.

Roy, **ZL4BO**, finds that the normal short path into Europe can vary as much as 30 degrees during his (southern) winter.

## bent path

The term "bent path" can probably best be explained by saying what it's not: it is *not* a short or long great circle path. Can we then consider the vast number of other possibilities as bent paths? Were it only that simple! Perhaps it's more accurate to say that any path that's strictly not great circle, short or long, contains some element of bending. Remember, the distances covered in some cases are to locations more than halfway around the globe, where the time-varying ionospheric layers are in a different state of flux. Perhaps the signal starts out on a great circle path, only to be diverted by conditions along the way. Maybe this also explains why some of the paths appear to be unilateral or one-way; wouldn't conditions between the stations have to be the mirror-image of each other to be reciprocal? One way to analyze this effect scientifically might be through the use of simultaneous encoded transmission beacons, each with its own directional antenna at both ends of each path, with each transmitter keyed to an atomic clock. Precise time measurements would then determine the path interval and at least its length. But this, some might say, would take the fun out of Amateur Radio. Isn't it the unpredictability of the arrival of signals from exotic locations that makes DXing so exciting?

But I'm straying from the subject. Let's get back to which bent paths, under what conditions, have actually been observed.

Using a three-element Yagi, **W6RJ** observes that most northern European openings are bent somewhat to the south. Furthermore, he states that two stations with coinciding sunrise and sunset times can communicate 90 percent of the time, in the absence of high QRN levels.

**ZL4BO** attributes his success in bent path propagation to his extreme southern latitude, utilizing the path over both the North and South Poles when the normal (short path) and long path conditions aren't good.

**SM4CAN** notices that the best direction for working United States stations "short path" is at a bearing of 270 degrees as opposed to the indicated 330-degree great circle azimuth. During auroral conditions, he has worked W6NLZ with signals appearing to come from South America; this correlates with Peter's (W6NLZ) observation from his end of the path.

**N4AR** has observed signals from Japan, Hong Kong, and Indonesia from the Southwest. In fact, he always hears VS6DO and YB5ASO more strongly on this bent path than from the great circle direction. "This bent path is clearly in the direction of the terminator line [Gray-line — Ed.] and somehow these far eastern Asiatic and Pacific signals scatter into the terminator line path," he says.

Using his full-size three-element Yagi, **OH1RY** observes signals from Hawaii at a bearing of 90 degrees (east), whereas great circle calculations would indicate a northerly direct path.

**W1FV**, as well as many others on the east coast of

the United States, has observed the same bent path towards Japan and Southeast Asia in the morning by beaming to the southwest. Not only have other stations observed this path, but they've also seen it change abruptly (within a matter of minutes) from the southwest to the northwest when hearing Japanese stations. Using a rapidly switched phased vertical array, John finds that it often exhibits ill-defined directional characteristics for long-haul paths around sunset and sunrise, although the antenna is otherwise quite directional. "Perhaps this is explained by multipath propagation or some unusual radiation-angle and/or polarization effects?" he wonders, adding that "this ill-defined directionality is also noted on most signals during periods of a disturbed geomagnetic field."

## long path

It's not uncommon to hear stations calling CQ long path around sunset from the east coast. What are they hoping to accomplish? And what's this phenomenon called "long path?" It's reasonable to assume that the practice first gathered momentum with stations on the higher HF bands — for example, on 20, 15, and 10 meters years ago. They observed that it was possible to contact stations by pointing their highly directional antennas in the opposite direction of the great circle short path. At the time very few stations on 80 meters had directional antennas and it was even less likely that *both* stations at opposite ends of the path would have directional arrays. That long path contacts occurred on 80 meters in those years was, however, certain; they just weren't called "long path." (I would like to hear from anyone who operated 80-meter long path years ago.)

**N4RJ, W4DR, K2FV** and **W1FV** have been able to work into western Australia, Indonesia, and Japan at their sunset by beaming southeast, utilizing primarily the "long path."

From the other side of the path, **VK6LK** finds that his long path opening to the East Coast of the United States normally starts about 15 to 20 minutes after his sunrise and lasts 20 to 30 minutes when the conditions are good. "My first long path opening was with W1FC on 13 September this year, and I would expect the path to close sometime next May. One problem here is short skip from YB. They can drown the weaker long path signals from the United States." From Japan, **JA1FRE** has also noticed the existence of a US-JA long-path through his (reception) observations of east coast United States stations at 2130Z.

Other, long path shots not well known by US stations of course still occur. **JA1FRE** works into the UK and Scandinavian countries at 0800Z, taking advantage of this mode. **SP3GEM** and other European stations are able to work into the Pacific areas using the long path. **K5UR** has a morning long path into Europe that isn't too common, but when it does occur, produces high signal levels.

Using his phased Bobtail curtain, **N4AR** has shown how reliable the early morning long path into central Asia can be. He has maintained a schedule over the years with **UL7GW**, talking to him approximately *100 times per season* using this mode. "During that period, many other Asiatic Russians were easily worked on a daily basis," he wrote. Besides these USSR stations, he also worked **XW8BP** and other southeast Asians at this time of day.

What's even more interesting is that he found that the path essentially disappeared during the sunspot *minimum* of 1974-1975. This is contrary to the widely accepted belief that sunspot *minimum* years provide the best low-frequency DX. N4AR commented, "While stronger signals (during this period) were evident from Europe in the evening and an occasional UA9 or UL7 QSO was possible in the evening, for all practical purposes the morning long path disappeared."

As stated earlier, this path returned during the most recent solar maximum. Fortunately at that time, **HS1ABD** and **UL7GW** were again active, serving as markers for band openings.

**N4AR** remarked that with the phased Bobtails, "There's no question deciding if signals are indeed coming from the direction of the long path. This tends to be along the terminator line during the 1130 to 1230Z window. Looking at the MUF limited F2 hops doesn't seem to explain the loss of signal (during sunspot minimum) adequately. In any event, it's certainly a real phenomenon, at least from this part of the world."

**SM6EHY** disagrees with the contention that a true long path condition exists with signals *originating* and *terminating* in the same hemisphere. "Long path — with the meaning of true long path direction — does not occur on 80 meters," he wrote. Signals arriving at SM6EHY's QTH from KL7, KH6, VE7, W7 and W6 have the same azimuth angle: 110 degrees. "They arrive at a very high angle (50 to 60 degrees), with some noticeable echo. This holds true only for the same hemisphere. Signals coming from the southern hemisphere have all true azimuth angles for both short and long paths." He also believes that at W0, W6, and W7 sunrise, stations should not be beaming long path but using the Arctic path instead.

## other influences

Through his 20,000 hours of low-band observations, **SM6EHY** credits the significant influence of the aurora on propagation. "The conditions this far north are very heavily affected by aurora with regards to paths to stations in the northern hemisphere such as JAs and Ws. The maximum particle radiation from the sun (which causes the aurora) is predicted to occur ap-

proximately two years after the sunspot maximum. In this last cycle the aurora has consistently occurred from December, 1981, until now (March, 1986) leaving the polar path open only on special occasions." When this polar path is open SM6EHY can work the east coast and midwestern United States from 0800 till 1200Z. Japanese stations can be worked 24 hours a day. This occurs from mid-November until mid-February, when the path is open.

## where is this auroral activity?

**SM6EHY** continued, "The aurora expands between Spitzbergen (JX) and northern Norway (LA) and under most conditions the maximum activity is experienced close to 64 degrees N (latitude). From 144 MHz observations, the reflection belt travels from the far east through the north to the west and then disappears. Occasionally, it's the other way around.

Bjorn went on to mention that the aurora can change very rapidly — within a period of seconds — virtually closing down a good path. When the auroral activity is *south* of his location the "arctic is like an open field where signals experience very little attenuation."

## what other paths does it affect?

"A bent path has been observed during auroral activity," Bjorn wrote. "The signals coming from W1 [stations] just cannot travel through the arctic region [the auroral can be considered to be a 0 to 30 dB pad, depending on the level of activity and signal path — Ed.] and must be reflected in an area close to the equator and other places at the same time. This causes the signal to be heard with some echo and QSB."

## benefits of a low-angle radiator

With his phased vertical array and large ground system, Bjorn feels he's able to launch an extremely low-angle signal that can go *under* the aurora's attenuation belt. "The lower you go in frequency, the more important is the takeoff angle; the angle fluctuations are more pronounced at lower, rather than higher, frequencies," he said.

Bjorn believes it's important to transmit at angles between 0 degrees and 10 degrees on 80 meters. "A low takeoff angle antenna can be used very effectively during auroral activity to contact some stations at least *part of the way* through the auroral region. A case in point is when he's not able to hear the W1s, but can still work OX or VE8 stations with good signal strengths."

## ducting

Another propagation mode noticed by **SM6EHY** and others involves signals entering at one location, traveling and being trapped between ionospheric layers, and finally exiting at a second location, whereby stations in-between cannot copy either end point. Specifically, on north-south paths signals from stations as far south as 15 degrees follow normal paths. Further south, ducting appears to occur. There are times when Swedish stations north of SM6EHY are able to communicate with South Africa but not be heard by him.

Ducting also possibly occurs on the North Atlantic path between the east coast of the United States and Europe. This might explain the high signal strengths received across the Atlantic by stations using low dipoles that launch high-angle signals. If it were simply a case of multihop propagation between the ionosphere and earth, signal levels would be lower. However, reflections *between* layers, on the other hand, would account for less loss. The entrance and exit requirements for ducting might be high-angle.

## when are low-band conditions best?

**SM6EHY** echoes the sentiment expressed by N4AR that low-band conditions are probably best during the period of maximum solar activity (sunspot maximum). He explains that it's probably not noticed, since proportionately fewer stations operate on the low bands when the MUF is high and 10 through 20 meters are more heavily utilized at that time. It's possible to test this hypothesis during the next sunspot maximum, because there'll be more stations on than ever before using high-performance directional 80-meter antennas.

## disturbed geomagnetic field affects path

**N4AR** kept close track of WWV's A and K indices for many years and believes that neither the bent path nor the great circle long path appear to be beneficially influenced by geomagnetic disturbances. However, with the onset of a geomagnetic field disturbance, spectacular increases in signal strength are occasionally evident over the short path. Also observed by others, the latter situation is normally a precursor of the arrival of the lower energy electrons from the sun 24 to 36 hours later and its associated high level of D layer absorption.

## plans for the future

Because improvements are always possible in any station — big guns not excluded — the final question asked in the survey was "What improvements are you considering making to your station?" The responses to this question included ideas for improving receiving capability, installing higher performance transmitting arrays, increasing tower height, using a bigger radial system, installing lower loss transmission line and even acquiring a better site.

• **Receiving capability improvement. K3ZO** wants to improve his 160-meter reception in general. **N1ACH**

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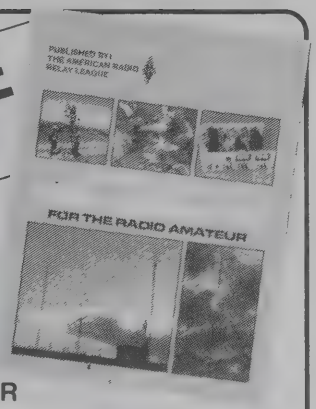


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wants to lengthen his 160-meter Beverages from 1.5 to 2.0 wavelengths. **4X4NJ** looks forward to an improved R4C for 160 meters. **SM4CAN** wants to use better Beverages. **N4RJ** feels that his Beverages could be better tuned and that adding a preamp at the antenna would help. **K1MEM** will terminate his Beverages and run additional ones SE and SW.

• **Transmitting array improvement.** **VE3BMV** wants to put a two- or three-element quad on his tower. **OH1RY** wants to install a two-element shortened 160-meter rotary. **OE6MBG** would like a two-element driven IV beam; **K2FV**, an additional half square. Phased verticals or phased delta loops would please **SP3GEM**. **KG7D** plans a three-element 160-meter parasitic vertical array using shortened elements. **JF1IST** would prefer a four- or five-element 80-meter rotatable Yagi. **DL0WU** wants a three-wavelength on a leg 80-meter rhombic; **K5UR**, a two-element phased 160-meter vertical aray. **YU7PFR** would like to construct four- or five-element wire Yagi, and **SM6EHY** a four-element 160-meter phased vertical array. A three-element full-size 80-meter Yagi at 160 feet would interest **VE2HQ**; **JA1FRE** would enjoy a two-element full-size Yagi. **W4DR** wants an 80-meter horizontal beam at 150 feet. **W6RJ** plans to raise his existing 80-meter three-element Yagi on his tower.

Other items on the big-gun wish list include increasing tower height (**PA3DFU**), adding more radials (**W3BGN** and **W1FV**), and using lower loss cable; **W1NH** wants to switch to hardline coax to reduce losses on his 500-foot run to the antenna. **WB2ITR** expresses a commonly felt need for a new site, one that has more land and better topography.

## conclusion

Well, now we have it: the secrets of successful low-band operation. Well, not quite. One necessary ingredient that's hard to quantify is, of course, the desire to succeed — in this case, to have the very best signal on the band. Besides the other three factors mentioned before (hard work, time, and expense) there's also the dream, the enthusiasm that keeps you climbing to greater heights, laying out just ten more radials and extending that Beverage even further, hoping that one night as you're scanning, that BY4 will come pounding through on 3.505 with a never-before-heard clarity and strength.

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3. Chapter 22, *From Beverages Through OSCAR: A Bibliography*, published by Rich Rosen, K2RR, 1979.

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# 1986 CQ WPX S.S.B. CONTEST HIGH CLAIMED SCORES

The following scores are early-bird high claimed scores as of 8 June 1986. These are raw scores subject to verification.
NOTE: Queries pertaining to the WPX Contest should be sent to N8BJQ via CQ Magazine, 76 N. Broadway, Hicksville, NY 11801

### U.S.A.

SINGLE OPERATOR

ALL BAND

| | |
|---|---|
| N4WW | 3,723,510 |
| NB1H | 3,694,971 |
| KI6P | 3,471,040 |
| WX4G | 3,416,770 |
| KC1F | 3,267,468 |
| K3ZO | 2,598,915 |
| AE6U | 1,978,704 |
| AI8S | 1,779,030 |
| AI2C/4 | 1,445,634 |
| NJ8N | 1,236,210 |
| WA3SPJ | 952,540 |
| NJ2L | 945,067 |
| KVOI | 734,928 |
| NT5V | 664,678 |
| K6EID | 556,306 |
| NK7U | 540,792 |
| NE8T | 510,450 |
| AG6D | 455,675 |
| KKOL | 450,536 |

28 MHz

| | |
|---|---|
| KR9G | 3,502 |

21 MHz

| | |
|---|---|
| W3BGN | 473,712 |
| N4MM | 299,563 |
| NC2V | 275,964 |
| KC7V | 250,515 |
| KA5W | 250,247 |
| K6SVL | 142,102 |
| W1BWS | 88,672 |

14 MHz

| | |
|---|---|
| N2AA | 2,716,944 |
| N7TT | 1,262,976 |
| KQ9L | 685,184 |
| WF5E | 574,449 |
| AG7M | 465,663 |
| K1KJT | 417,915 |
| AI3Q | 299,565 |

7 MHz

| | |
|---|---|
| K5NW | 344,556 |
| N2WT | 253,732 |
| AG9S | 130,000 |
| KJ3L | 85,626 |
| KBOU | 53,152 |
| WA4QQV | 28,518 |

3.7 MHz

| | |
|---|---|
| KR2J | 606,498 |
| KN8R | 394,356 |
| KQ3V | 230,864 |
| KE8AZ | 128,832 |
| N3BJ | 117,900 |
| KOCS | 106,128 |

1.8 MHz

| | |
|---|---|
| K5UR | 64,722 |
| AA4MM | 41,600 |
| N6TR/7 | 24,926 |
| N6VI | 18,300 |
| K7IDX | 18,060 |
| W8IMZ | 6,512 |
| ABOX | 6,000 |

### QRPp

| | | |
|---|---|---|
| K8UNP | A | 73,304 |
| WB9HRO | | 55,796 |
| N5BA | 28 | 1,474 |
| N1AFC | 21 | 90,720 |
| W6CN | " | 18,392 |

### MULTI - SINGLE

| | |
|---|---|
| KROY | 4,192,272 |
| KI1G | 4,091,448 |
| KU4V | 3,485,696 |
| AI7B | 3,413,166 |
| NU6S | 2,299,484 |
| AB6R | 2,190,396 |
| KM9L | 1,951,787 |
| NE2W | 1,549,040 |
| WI6Y | 1,544,405 |
| AI6U | 1,304,304 |
| WK6V | 1,199,205 |
| NF9S | 1,189,080 |
| KW6C | 1,011,499 |
| KJ9D | 840,807 |
| AAOA | 767,016 |

### MULTI - MULTI

| | |
|---|---|
| KW8N | 8,489,829 |
| NT5D | 5,198,443 |
| WC6H | 3,146,404 |
| W3GM | 981,065 |
| KC3EK | 926,887 |
| K6XO | 403,056 |

### DX

SINGLE OPERATOR

ALL BAND

| | |
|---|---|
| PJ2FR | 13,108,777 |
| AI6V/NH6 | 6,458,515 |
| VP2MBA | 5,312,502 |
| IO4VEQ | 5,287,645 |
| PJ9J | 5,094,824 |
| 8P9AR | 4,620,532 |
| VE60U/3 | 4,098,330 |
| ZF1MM | 3,891,800 |
| VE3XN | 3,700,100 |
| K4YT/DXO | 3,255,075 |
| IO6FLD | 2,603,250 |
| CE3DNP | 2,601,271 |
| G3FXB | 2,492,000 |
| VK9NS | 2,457,134 |
| LU4LAV | 2,369,552 |
| PP5JD | 2,268,816 |
| HH2WL | 2,107,686 |
| OK3CEM | 2,056,173 |
| ZL1ANJ | 2,042,228 |
| EA3CCN | 1,661,651 |
| PY8ZWM | 1,640,107 |
| CX9CO | 1,630,675 |
| HB9AAA | 1,437,825 |
| LZ1RN | 1,231,360 |
| HZ1HZ | 1,168,457 |

28 MHz

| | |
|---|---|
| CE6DFY | 210,474 |
| CE3ZI | 113,240 |
| CX2AAL | 90,896 |
| CE4NV | 25,032 |
| JR6IQI | 17,661 |
| DJ1ZV | 12,272 |

21 MHz

| | |
|---|---|
| CE6EZ | 4,705,659 |
| L4D | 3,946,362 |
| HC1OT | 3,309,171 |
| ZZ5ABW | 2,099,760 |
| 4X6NM | 1,165,465 |
| CE4FXY | 1,101,297 |
| PY5NF | 879,802 |

14 MHz

| | |
|---|---|
| VE1NG | 3,928,335 |
| TU4BR | 3,483,480 |
| AH6GQ | 2,877,058 |
| OK3CSC | 2,465,495 |
| YT3M | 2,179,808 |
| ZL1AXB | 1,684,803 |
| VE5FX | 1,367,964 |
| DA2ER | 1,246,602 |

7 MHz

| | |
|---|---|
| XL7SV | 3,469,836 |
| YV6CAX | 2,068,200 |
| SM5AQD | 936,992 |
| JA2BAY | 854,282 |
| JA7HMZ | 617,650 |
| 4N7ZZ | 437,292 |
| F6FIO | 383,194 |

3.7 MHz

| | |
|---|---|
| VE3BMV | 1,928,940 |
| DF8XC | 693,546 |
| I4EWH | 418,696 |
| LXORL | 388,188 |
| KG6DX | 350,014 |
| OZ1AXG | 341,190 |
| VE7XYL | 309,960 |

1.8 MHz

| | |
|---|---|
| LZ2CJ | 193,590 |
| IO4JMY | 151,302 |
| 5B4LP | 143,752 |
| VE3PN | 83,752 |
| HB9CXZ | 54,026 |
| XE2NNZ | 41,720 |
| LZ1KOZ | 34,191 |
| J41PL | 31,062 |

### QRPp

| | | |
|---|---|---|
| K7SS/WH6 | | |
| | A | 2,083,752 |
| 4X6IF | | 482,798 |
| DL8PC | | 262,152 |
| KH6CP | 28 | 4,920 |
| LZ2EW | 21 | 112,112 |
| ZS6PT | | 57,125 |
| JA2JSF | 14 | 64,930 |
| IKOCPS | | 32,804 |
| LZ2QV | 7 | 58,767 |
| OK3CTT | 3. | 65,968 |

### MULTI - SINGLE

| | |
|---|---|
| NP4CC | 11,201,571 |
| LZ7A | 9,818,424 |
| DFOSSB | 8,660,412 |
| LU2FFD | 7,710,374 |
| LU2E | 7,213,712 |
| TROA | 6,633,494 |
| FF3TV | 5,735,664 |
| JA3YKC/T32 | 5,499,206 |
| KH6DW | 4,941,160 |
| FO8JP | 4,811,400 |
| AH2BE | 4,499,628 |
| 4N2E | 4,094,288 |
| LU1VZ | 3,961,105 |
| YEOX | 3,807,840 |
| TI2OY | 3,304,084 |

### MULTI - MULTI

| | |
|---|---|
| KH6XX | 18,549,810 |
| WL7E | 7,542,310 |
| JA9YBA | 4,966,032 |
| JH7YCT | 2,158,240 |
| CE6OS | 760,612 |
| PI4DEC | 600,928 |
| JA3YCT | 261,158 |


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| .375 | .058 | 7.34 | 1.625 | .058 | 36.29 |
| .500 | .035 | 6.48 | 1.625 | .125 | 74.84 |
| .500 | .058 | 10.26 | 1.750 | .058 | 39.20 |
| .625 | .058 | 13.07 | 1.750 | .125 | 81.00 |
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| .750 | .058 | 15.98 | 2.000 | .058 | 44.93 |
| .750 | .125 | 31.21 | 2.000 | .065 | 50.22 |
| .875 | .035 | 11.77 | 2.000 | .125 | 93.53 |
| .875 | .058 | 18.40 | 2.250 | .065 | 56.59 |
| 1.000 | .058 | 21.82 | 2.500 | .065 | 63.18 |
| 1.000 | .125 | 43.63 | 3.000 | .065 | 76.14 |
| 1.125 | .058 | 24.73 | 3.250 | .125 | 155.84 |
| 1.125 | .125 | 49.90 | 3.500 | .125 | 168.37 |
| 1.250 | .058 | 27.54 | 4.000 | .065 | 102.06 |
| 1.250 | .065 | 30.78 | 4.500 | .065 | 115.02 |

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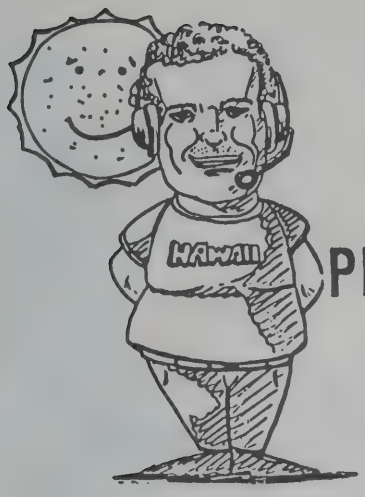



# KH6BZF PROPAGATION REPORT

*Lee Wical, KH6BZF*

Statistical information is compiled by KH6BZF and processed on a computer by VE3BMV.

The first diagram shows the value of solar flux (top curve) and SSN - sunspot number (bottom curve). The Y axis and scale is the same for both. The X - axis is calibrated in days of the month.

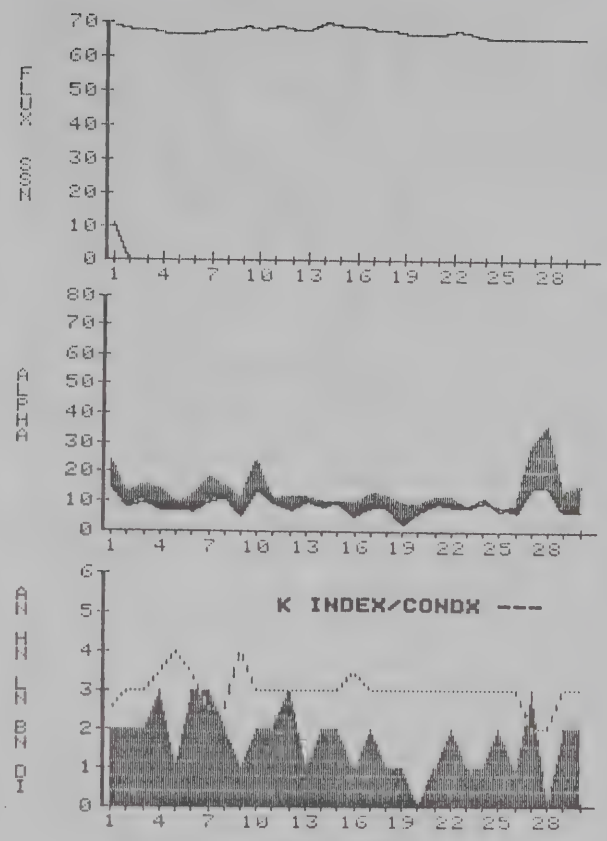
The second diagram shows variation of the Alpha Index for each day. The dark shaded area shows increases, while the white area shows decreases in the value of the Alpha Index for each day.

The third diagram shows the value of the K Index (shaded area) on a scale from 0 to 6. The dotted line represents the propagation quality where the scale is: from 5 = Above Normal to 1 = Disturbed.

FORECAST:

BEST HF CONDX: AUG: 8 SEPT:6

BEST VHF CONDX: AUG: 22




| JUN '86 | CONDX | SOL FLUX LEVEL | SSN# | GEOMAGNETIC LEVEL | ALPHA K INDEX INDX NOTES |
|---|---|---|---|---|---|
| 01 | LN-BN | 069 VY LOW | 11 | ACTIVE-M.S. LVLS | 15/24 K=2 RGN 4732(1) SOI, W86 |
| 02 | LN | 068 VY LOW | 00 | UNSETTLED-QUIET | 08/13 K=2 RGN 4732 Passed over the West Limb of Sun. |
| 03 | LN | 068 VY LOW | 00 | QUIET-UNSETTLED | 10/16 K=2 NO SUNSPOTS |
| 04 | HN-LN | 067 VY LOW | 00 | QUIET-UNSETTLED | 07/14 K=3 NO SUNSPOTS |
| 05 | HN | 067 VY LOW | 00 | QUIET-UNSETTLED | 07/09 K=1 NO SUNSPOTS |
| 06 | HN-LN | 067 VY LOW | 00 | QUIET-UNSETTLED | 06/12 K=3 NO SUNSPOTS |
| 07 | LN-BN | 068 VY LOW | 00 | QUIET-UNSETTLED | 10/18 K=3 NO SUNSPOTS |
| 08 | LN-BN | 068 VY LOW | 00 | QUIET-UNSET-M.S.LVLS | 11/15 K=2 NO SUNSPOTS |
| 09 | HN | 069 VY LOW | 00 | QUIET-UNSETTLED | 05/11 K=1 NO SUNSPOTS |
| 10 | HN-LN | 068 VY LOW | 00 | QUIET-UNSETTLED | 14/24 K=2 NO SUNSPOTS |
| 11 | LN | 069 VY LOW | 00 | UNSETTLED-QUIET | 09/11 K=2 NO SUNSPOTS |
| 12 | LN | 068 VY LOW | 00 | QUIET | 07/12 K=3 NO SUNSPOTS |
| 13 | LN | 068 VY LOW | 00 | QUIET | 10/11 K=1 NO SUNSPOTS |
| 14 | LN | 070 VY LOW | 00 | QUIET | 08/10 K=2 NO SUNSPOTS |
| 15 | LN | 069 VY LOW | 00 | QUIET | 10/10 K=2 NO SUNSPOTS |
| 16 | HN-LN | 069 VY LOW | 00 | QUIET | 05/09 K=1 NO SUNSPOTS |
| 17 | LN | 068 VY LOW | 00 | QUIET | 08/13 K=2 NO SUNSPOTS |
| 18 | LN | 068 VY LOW | 00 | QUIET | 08/12 K=1 NO SUNSPOTS |
| 19 | LN | 067 VY LOW | 00 | QUIET | 02/09 K=1 NO SUNSPOTS |
| 20 | LN | 067 VY LOW | 00 | QUIET | 06/09 K=0 NO SUNSPOTS |
| 21 | LN | 067 VY LOW | 00 | QUIET | 09/12 K=1 NO SUNSPOTS |
| 22 | LN | 068 VY LOW | 00 | QUIET | 08/11 K=2 NO SUNSPOTS |
| 23 | LN | 067 VY LOW | 00 | QUIET | 08/08 K=1 NO SUNSPOTS |
| 24 | LN | 066 VY LOW | 00 | QUIET | 10/11 K=1 NO SUNSPOTS |
| 25 | LN | 066 VY LOW | 00 | QUIET | 08/07 K=2 NO SUNSPOTS |
| 26 | LN | 066 VY LOW | 00 | QUIET | 06/09 K=1 NO SUNSPOTS |
| 27 | LN-DIS | 066 VY LOW | 00 | QUIET-DISTRUBED | 15/29 K=3 NO SUNSPOTS |
| | | STORM NW QUADRANT-STORMY DUE TO DISAPPEARING FILEMENT ON 22nd JUNE; STORM BEGAN 27/1000-OVER 28/0900 UTC | | | |
| 28 | LN-DIS | 066 VY LOW | 00 | QUIET-DISTRUBED | 15/36 K=0 NO SUNSPOTS |
| 29 | LN | 066 VY LOW | 00 | QUIET | 07/14 K=2 NO SUNSPOTS |
| 30 | LN | 066 VY LOW | 00 | QUIET | 07/16 K=2 NO SUNSPOTS |

de KH6BZF:

In several DX bulletins, in past weeks, "KH6BZF Reports" was misquoted. Please clear this up. Quote, "RGN 4734 (N26;W10) appeared on the disk on/about 03 JULY 1986 and it was observed as a BI-POLAR CONFIGURATION. This configuration generally indicates the present cycle (21) and a new cycle (22) is from one to five years away..." KH6BZF still picks somewhere between not earlier than February 1987 and not later than October 1987. Next summer, 1987, would be a place to "put one's money."

Thoughts from Rainbow Bay:

Remember: When you are over the hill... you will pick up speed.

A man with one watch always knows what time it is... a man with two watches is never sure!!

If everything seems to be going well... you have obviously overlooked something!!

Appreciate me now... and avoid the rush!!

One thing about pain,... it proves you are alive!!

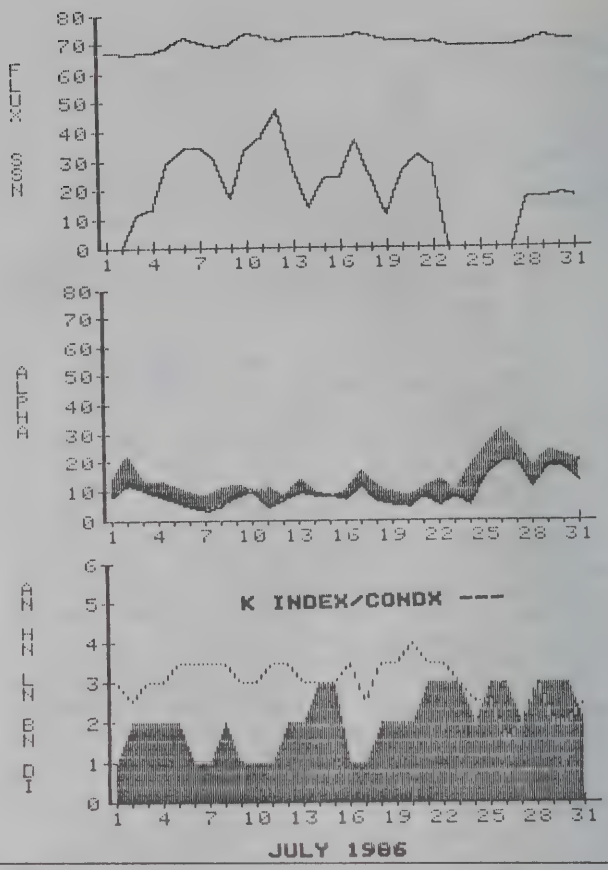
Problems create meetings... sometimes the importance of those meetings becomes more important than the original problem!!

Everyone always exagerates!!

Reality is... for those people who have no imaginations!!

Consistency is the last refuge of the unimaginative!!

I may be lost... but I am making record time!!!




| JUL '86 | CONDX | SOL FLUX LEVEL | SSN# | GEOMAGNETIC LEVEL | ALPHA INDEX | K INDX | NOTES |
|---|---|---|---|---|---|---|---|
| 01 | LN | 067 VY LOW | 00 | QUIET-UNSETTLED | 08/14 | K=1 | NO SUNSPOTS |
| 02 | LN-BN | 066 VY LOW | 00 | QUIET-UNSETTLED | 12/22 | K=2 | NO SUNSPOTS |
| 03 | LN | 067 VY LOW | 12 | QUIET-UNSETTLED | 10/13 | K=2 | RGN 4734(2) RevPol N26, W10 |
| 04 | LN | 067 VY LOW | 14 | QUIET | 08/13 | K=2 | RGN 4734(4) N26, W26 |
| 05 | HN-LN | 069 VY LOW | 30 | QUIET | 06/11 | K=2 | RGN 4734(5) N26, W36; 4735(5) N00, E80 |
| 06 | HN-LN | 072 VY LOW | 34 | QUIET | 04/09 | K=1 | RGN 4734(9) N26, W49; 4735(5) N00, E66 |
| 07 | HN-LN | 070 VY LOW | 34 | QUIET | 03/08 | K=1 | RGN 4734(3) N27, W61; 4735(7) N00, E52 |
| 08 | HN-LN | 069 VY LOW | 30 | QUIET | 05/11 | K=2 | RGN 4734(3) N28, W74; 3735(7) N01, E41 |
| 09 | LN | 070 VY LOW | 17 | QUIET-UNSETTLED | 08/12 | K=1 | RGN 3734 PASSED OVER; 4735(7) N00, E29 |
| 10 | LN | 073 VY LOW | 34 | QUIET | 10/10 | K=1 | RGN 4735(8) N00, W52; 4736(6) N07, W52 |
| 11 | HN-LN | 072 VY LOW | 38 | VY QUIET | 04/11 | K=1 | RGN 4735(9) S00, W81; 4736(9) N08, W64 |
| 12 | HN-LN | 071 LOW | 48 | QUIET-UNSETTLED | 07/08 | K=2 | RGN 4735(9) S01, W15; 4736(7) N07, W79 4737(2) N04, W53 |
| 13 | LN | 072 VY LOW | 28 | UNSETTLED-QUIET | 09/14 | K=2 | RGN 4735(5) S01, W29; 4736 PASSED OVER 4737(0) N04, W66 |
| 14 | LN | 072 VY LOW | 14 | UNSETTLED-QUIET | 08/09 | K=3 | RGN 4735(4) S01, W42; 4736(0) N04, W79 4737(0) N04, W81 |
| 15 | LN | 072 VY LOW | 24 | QUIET-UNSETTELD | 08/08 | K=3 | RGN 4735(1) S02, W55; 4637 PASSED OVER W 4737(0) N04, W90 4738(3) N07, E74 + PASSED OVER W LIMB |
| 16 | HN-LN | 072 VY LOW | 24 | UNSETTELD-QUIET | 07/10 | K=1 | RGN 4735(1) S01, W70; 4738(3) N06, E57 |
| 17 | LN-BN | 073 VY LOW | 37 | UNSET-ACT M.S.LVLS | 12/17 | K=1 | RGN 4725(1) S01, W83; 4738(3) N06, E44 |
| | | M.S. DUE TO ENHANCED X-RAY FILAMENT TYPE II, REFORMED RADIO BURST(S). | | | | | 4739(3) S06, E28 |
| 18 | HN-LN | 072 VY LOW | 24 | UNSETTLED | 06/11 | K=2 | RGN 4735(1) S01, W90 + PASSED OVER W LIMB 4738(4) N07, E30; 4739(0) S06, E15 |
| 19 | HN-LN | 071 VY LOW | 11 | QUIET | 05/09 | K=2 | RGN 4738(1) N08, E15; 4739(0) S06, E02 |
| 20 | HN | 071 VY LOW | 26 | QUIET | 04/08 | K=2 | RGN 4738(4) N08, E02; 4739(0) S06, W17 |
| 21 | HN-LN | 070 VY LOW | 32 | QUIET-UNSETTLED | 08/11 | K=3 | RGN 4738(8) N08, W31; 4740(4) N08, E26-¦ |
| 22 | LN-HN | 071 VY LOW | 28 | UNSETTLED-ACTIVE | 05/14 | K=3 | RGN 4738(5) N08, W34; 4740(3) N09, E12 ¦ |
| 23 | LN | 069 VY LOW | 00 | UNSETTLED-QUIET | 08/10 | K=3 | NO SUNSPOTS ¦ |
| 24 | LN-BN | 069 VY LOW | 00 | QUIET | 05/18 | K=2 | NO SUNSPOTS; SUDDEN IMPULSE @ 2115 UTC ¦ |
| 25 | LN-BN | 069 VY LOW | 00 | ACTIVE | 15/25 | K=3 | NO SUNSPOTS [4740(4) N08, E56]<--¦ |
| 26 | BN-DIS | 069 VY LOW | 00 | ACTIVE M.S. LVLS | 20/32 | K=3 | NO SUNSPOTS |
| 27 | BN | 069 VY LOW | 00 | ACTIVE M.S. LVLS | 20/26 | K=2 | RGN 4741(1) N10, E75 |
| 28 | LN | 070 VY LOW | 17 | QUIET-UNSET-M.S.LVLS | 11/18 | K=3 | RGN 4741(6) N10, E67 |
| 29 | BN | 072 VY LOW | 17 | ACTIVE | 18/24 | K=3 | RGN 4741(7) N08, E51 |
| 30 | BN | 071 VY LOW | 18 | UNSETTLED | 18/22 | K=3 | RGN 4741(8) N09, E39 |
| 31 | LN-BN | 071 VY LOW | 17 | UNSETTLED | 13/20 | K=2 | RGN 4741(7) N09, E24 |

Chuck Clark, K4ZN

# TRAFFIC EMERGENCY

Route 3, Box 800, Moncks Corner, SC 29461

## EMERGENCY POWER

Amateurs render their stations more valuable from a public-service standpoint if they are able to operate independently of commercial power. Many (perhaps I should say most) of us operate under limited budgets. It would be nice to be able to have emergency power for our rigs and to supply all the needs of the house too when the regular power fails, but the price seems far beyond our means.

Maybe it is not. There may be a way to get such a generator "free." You may even be able to get the power company to buy it for you! Naturally, you can't go to the power company and expect the people to give you a generator. But having a generator might give you leverage to bargain with the power company for a lower rate that will enable you to recover the cost in a year or two. It has been done. In fact the power that's running the Commodore 64 that I'm using to write these lines is coming from such a generator that is expected to pay for itself in about a year.

Here is the way it works: your electric bill represents payment to cover several costs. The main item is energy cost, kilowatt-hours, and basically represents the cost of fuel to run the power plant. But there are also fixed costs that must be recovered, such as administrative costs, represented by the minimum bill, and the cost of the generating plant, transmission and distribution lines, substations, transformers, meters. The cost of all these items is determined by your peak load. If your average load is one kilowatt, resulting in a monthly bill for 720 kilowatt hours, but your peak load during that month is ten kilowatts, everything in the system, from the generator to the service drop bringing power to your house, must be able to handle ten kilowatts. While this is not quite true as we get closer to the generator because not all users will be drawing their peak load at the same time, enough users do have their peak loads at the same time to make it necessary to include much additional capacity to handle those peaks. On a hot day like today, for example, everybody will be running their air conditioners, refrigeration equipment will be running wide open, and more water will be pumped, all calling for more power.

Additional capacity does not come cheaply. Power plants cost in the hundred million dollar range, transmission lines in the hundred thousand dollar per mile range, and substations in the hundred thousand dollar range. As a result, anything that can be done to reduce the peak load on the system is money saved, big money, on the order of a thousand dollars per kilowatt.

The third item on an electric bill, the demand factor, represents this cost. You don't usually see it on residential bills, but it's included in the rate schedule, it's the reason why you pay a higher rate for the first 100 kilowatt-hours, for instance. Larger users have a separate demand charge added to the kilowatt-hour bill.

In our case here, the power company came to us and offered us a choice of several rates, one was the regular commercial power rate that we had been paying, based on kilowatt-hours of energy used and kilowatt peak demand per month, but they added that those rates will be going up. The one they strongly encouraged us to accept was a three-part rate, based on energy usage plus peak demand, with the third element an additional charge for coincident peak demand, our demand when the system's peak occurs. The first two rates are much lower than previously, the kilowatt-hour rate is the lowest rate in our previous contract, the demand charge is three dollars per kilowatt, half what we previously paid, but the coincident demand is $13 per kilowatt. So now the electric company notifies us when their peak is expected and we switch over to our generators and remove our load from the system and reduce our coincident demand to zero. If we do, we save a bundle, if we don't, we lose a bundle, as much as $2500 or more a month. This happens about ten times during winter and twenty times during the summer.

The idea behind this method of billing is that those who are responsible for making it necessary to build additional power plants to provide for peak loads should pay for those power plants.

This is a fairly large institution, with 200 kilowatts generating capacity originally intended for standby power. Thus far savings have been on the order of $1000 per month. The average amateur doesn't have that kind of load, and would find it hard to negotiate a similar rate reduction. But an amateur club might be able to negotiate such a rate for its members, particularly if it has someone who has proper connections with the power company, and many clubs do. At least it's worth a try. The worst they can do is to say no. And most power companies are very much concerned with trimming those peaks and will be interested in anything that promises to help.

## CW FOREVER?

Recent columns have discussed the likelihood of CW's early demise, and have concluded that it's still much too early to write its obituary. Despite all the high-tech modes now available, when dependability of communication is the primary consideration, and especially when lives are at stake, communication people want to keep CW as an available option.

The Networks, a newsletter for traffic handlers in the New England area put out by Jim Hatherley, WA1TBY, adds another voice to the chorus in the form of an article that had appeared in the October 1985 issue of The American Marine Engineer, to the effect that, despite all modern developments in communication, Morse telegraphy continues to dominate the air waves for ships at sea. More than 31,000 merchant vessels are fitted with this unique

and effective means of radio communication.

Before the invention of radio, a ship had no communication anywhere once it was out of sight of land, except occasionally if it met another ship. In 1895 Marconi's "wireless" changed all that. Naval vessels and commercial ships now could communicate with one another and with shore-based facilities almost anywhere in the world.

In the minds of both naval authorities and shipowners, the primary consideration was the ability to communicate rapidly, without need to wait until a ship came into port. It was only some years later that radio telegraphy began to be generally seen as an important aid to safety at sea. In 1909, the Republic and the Volturno collided off the east coast of the U.S. The steamship Baltic received the distress message and rushed to the scene of the collision. All 1700 people on board the two ships were saved, and a potential major disaster was averted. It took the sinking of the Titanic, however, to establish safety as the primary function of radio telegraphy in the maritime service.

The day before the Titanic struck the iceberg, her radio station had been handling heavy message traffic, and the ice reports had been seen more as a nuisance than anything else. After all, "Even God can't sink this ship!" There had been adequate warning, but it wasn't heeded, and her radio operators' callous attitude was responsible for the fact that a ship that could have helped did not hear her distress call. Its operator had given up trying to fight the big ship with its kilowatts and wasn't on watch when disaster struck.

International conferences and laws of maritime nations, such as the U.S. Radio Act of 1912, made radio equipment mandatory aboard ocean-going vessels, required operators to maintain watches, and established safety as the primary function of the Maritime Mobile Radio Service. Today, the Safety of Life at Sea Convention requires radio telegraph equipment to be fitted in all deep-draft merchant vessels engaged in foreign commerce, but there are some who would like to see it phased out.

Sam Blunt, a technical and legislative affairs director for the Radio Officers Union, has been working in London with radio officers groups from many countries to promote the use of radio telegraphy and to insure that any future safety radio equipment is proved to be completely effective and reliable before it is allowed to replace existing equipment. Much new equipment, he says, that is being proposed as the distress system of the 1990s, is unreliable. It may be good enough for general business communications, but not good enough for seamen to depend on it for their lives.

For example, ship satellite antennas often fail to remain pointed to ("locked on") the satellite when the sea is rough. And failure of the ship's air conditioning system often knocks out the satellite equipment if the temperature rises too high. Radio officers say it's a "fair weather friend."

The radio officers have shown themselves willing to accept and use the new equipment, but they insist on a lengthy trial period to be sure it is as effective and reliable as radio telegraphy before it is substituted for the latter.

Lest one think the radio officers are concerned for their jobs, that they are afraid that if ships no longer carry radio telegraph equipment there will no longer be a need for a "sparks" aboard, one must realize that there will continue to be a need for someone skilled in electronics to maintain the new equipment and all the other electronic gear now found aboard modern vessels. In fact, currently the title for the position is becoming "radio and electronics officer." The airlines were able to stop carrying radio operators when they stopped using telegraphy, but ocean-going ships won't be able to. Airplanes are in the air only for a few hours at a time, while ships may be at sea for weeks. Repairs on aircraft are made on the ground, but repairs on ships must be made at sea, so there has to be someone aboard who can make the repairs.

With the military showing renewed interest, with merchant shipping not losing interest, it looks like CW will be around a long time yet. (K4ZN)

# W5LFL QUITS NASA

Dr. Owen K. Garriott, W5LFL, America's first "Ham in Space," has resigned from the astronaut corps. The announcement of his resignation was made on Tuesday, June 10. Garriott, who holds the record for the nation's most experienced space traveler tendered his resignation saying that he preferred to become a private consultant rather than endure another long wait to fly in space once again.

W5LFL told reporters that he was leaving his job as a mission specialist because the grounding of the shuttle program would mean at least a three to four year wait before he could ever expect to fly in space again.

As a scientist and engineer, Garriott's career was tied closely to Spacelab missions, and these are not expected to resume until well after the space shuttles are flying. "I do not know exactly how long it will be," said Garriott, "but it will be at least a year and a half before the first flight and another year or two beyond that before we're flying science missions." In 1983, the callsign W5LFL made front page headlines around the world when he became the first amateur radio operator ever to take ham gear into space and operate from earth orbit.

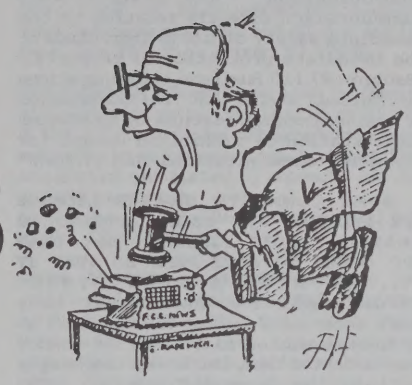
During the nine day STS-9/ Spacelab - 1 mission, Dr. Garriott made numerous contacts while running only 5 watts output on 2 meter FM into a window mounted antenna. His ham radio exploits during the Spacelab 1 operation were chronicled in the ARRL videotape presentation "Amateur Radio's Newest Frontier."

During the span of his career, W5LFL has spent 1,650 hours in space. This is more than any other active astronaut. With Owen Garriott's resignation, the only other licensed American amateurs still in the astronaut corps are mission specialists Dr. Anthony England, WØORE, and Dr. John David Bartoe, W4NYZ.

Both flew on the Flight 51 - F mission with WØORE operating 2 meter voice and SSTV from the Challenger. Dr. Ron Parise, WA4SIR, a non-astronaut Payload Specialist was also expected to fly on a future shuttle mission, but when non-pilot personnel will again be permitted to fly on shuttle missions is unknown. The recently released Rogers Report recommends that non-astronaut corps members not be permitted to take part in shuttle flights for the foreseeable future.

Since manned amateur radio operations from space are dependent on scientist-astronauts who are hams, and tied to scientific missions such as the ESA Spacelabs, it is logical to assume that it will be a good number of years before we again see a United States radio amateur operating live from space. (Westlink Report)

# FCC NEWS




BILL GRENFELL, W4GF

**"ALBERT KUKLIN OF TUCSON, ARIZONA AND HIS SON, EUGENE S. KUKLIN, K7KCA, OF APACHE JUNCTION HAVE BOTH PAID FCC FINES TOTALLING $1,050 INVOLVING UNLICENSED TRANSMISSIONS THROUGH A 2-METER AMATEUR RADIO REPEATER LOCATED IN TUCSON."** Kuklin senior was operating without a license using the call K9LUX and equipment installed by his son. "Albert was charged with operating an unlicensed amateur radio station and his son with 'aiding and abetting the violation of FCC Rules and Regulations, transmission of a false call sign and communication with an unauthorized station.'" Albert Kuklin paid a $750 fine and Eugene, K7KCA paid a $300 fine and voluntarily surrendered his amateur license for a period of six months. "Kuklin will regain his license on June 24, 1986." The investigation was conducted by FCC's Douglas, AZ office, (W5YI Report, 05/15/86).

**THREE LICENSED AMATEURS HAVE BEEN SERVED WITH NOTICES OF APPARENT LIABILITY TO A MONETARY FORFEITURE IN THE AMOUNT OF $1,000 FOR OPERATING THE FREQUENCY BAND 26.165-26.770 MHz** which is allocated for use only by the U.S. Government and the Auxiliary Broadcasting Service. They are: Joseph W. Bosak (Advanced), N3DFD, Adrian J. Post (Technician), KA2YIN, Walter Leddick, Sr. (Technician), N3DXP. The investigation was conducted by FCC's Philadelphia office. (ARRL Letter, 05/09/86).

**PRESIDENT REAGAN HAS SIGNED LEGISLATION THAT ESTABLISHES "COST OF REGULATION" (LICENSE) FEES RANGING FROM $20 TO $18,000 FOR USERS OF THE ELECTROMAGNETIC SPECTRUM.** "Private leisure users (including amateur radio) are exempted. "Law takes effect 360 days after signing and also authorized FCC funding for 1987. "The cost of regulation fees are expected to raise some $30 million a year." (W5YI Report, 05/15/86).

**THE TEXT OF THE RULE SECTIONS AMENDED AND ADOPTED IN PR DOCKET NO. 85-22, CONCERNING FREQUENCY COORDINATION OF REPEATERS, EFFECTIVE JULY 12, 1986, ARE AS FOLLOWS:**
97.3(k) Coordinated station operation. The repeater or auxiliary operation of an amateur station for which the transmitting and receiving frequencies have been implemented by the licensee in accordance with the recommendation of a frequency coordinator.
97.3(r) Harmful interference. Interference which seriously degrades, obstructs or repeatedly interrupts the operation of a radio communication service.
97.3(aa) Frequency coordinator. An individual or organization recognized in a local or regional area by amateur operators whose stations are eligible to engage in repeater or auxiliary operation which recommends frequencies and, where necessary, associated operating and technical parameters for amateur repeater and auxiliary operation in order to avoid or minimize potential interference.
Paragraph (c) of Section 97.67, including the table contained therein, is removed and reserved.
97.85 (g) Where an amateur radio station in repeater or auxiliary operation causes harmful interference to the repeater or auxiliary operation of another amateur radio station, the two stations are equally and fully responsible for resolving the interference unless one station's operation is coordinated (See 97.3(k)) and the other is not. In that case, the station engaged in the non-coordinated operation has primary responsibility to resolve the interference.
Appendix 5 to Part 97 is removed and reserved.

**THE ARRL LETTER OF 05/09/86 STATES THAT:** "HQ will provide a copy of any amateur related Commission rulemakings free to any ARRL member upon receipt of a business-sized SASE with 3 units of first class postage."

**THE FCC SEEKS COMMENTS ON LOCAL REGULATION OF RF RADIATION.** The Commission asks interested parties to submit any detailed information they may have concerning the extent to which state and local RF radiation standards have or have not adversely affected communications services by imposing unreasonable burdens, economic or otherwise, upon licensees.

**THE ARRL HAS WRITTEN FCC INDICATING IT'S INTEREST IN FINDING A WAY IN WHICH AMATEURS' REQUESTS FOR SPECIFIC UNASSIGNED STATION CALLSIGNS CAN BE HONORED.** In the League's 06/17/86 letter, Vice President Sumner wrote: "As the only national Amateur Radio organization which represents the entire spectrum of radio amateurs' interest and activities, the ARRL would be the logical choice to assume the exclusive role of fulfilling such requests for special callsigns, and would be interested in doing so if its associated costs could be recovered from the licensees so served." He notes that Amateur Radio organizations in other countries are similarly involved, and continues with: "Our preliminary investigations have revealed no legal impediment to the privatization of the area, particularly in view of the Commission's recent actions concerning frequency coordination in the land mobile services, provided that the basis station license continues to be issued by the Commission." Informal discussion with a key FCC official reveals there is a definite interest in establishing some such type of call assignment procedure and, when asked when it could be in operation, he said it might be by the end of 1986!

**THE ARRL VEC PUT THE NEW ADVANCED CLASS WRITTEN ELEMENT QUESTION POOL INTO USE IN TESTS BEGINNING 17/01/86.** The FCC issued the pool in January 1986. Also, because FCC released its new Extra Class question pool in April 1986, the ARRL/VEC will be changing the tests for the EXtra Class on 10/01/86. (ARRL Letter, 06/06/86.)

**THE FCC CHIEF ENGINEER DISMISSED AN ARRL PETITION TO REQUIRE THE LABELING OF HOME ELECTRONIC EQUIPMENT RELATIVE TO ITS SUSCEPTIBILITY TO RADIO FREQUENCY INTERFERENCE.** Indication of whether the device incorporated shielding, filtering or circuitry designed to reduce its susceptibility to nearby radio transmitters, was requested. He stated that the Commission approached this problem with the view of minimum regulatory involvement and took note of the voluntary RFI standards recently set by an ad-hoc committee of the Accredited Standards Committee (May QST, page 47). "However, if we find that such voluntary efforts do not afford an adequate degree of susceptibility control within an appropriate period of time, then mandatory standards and enforcement methods could be considered." (ARRL Letter, 06/06/86.) At its June 12-13 meeting, the ARRL Executive Committee directed the ARRL General Counsel to file a petition for reconsideration of the denial. (ARRL Letter, 06/20/86.)

**WHEN ASKED WHETHER IT WOULD BE POSSIBLE TO COLLECT FEES FOR REPEATER COORDINATION TO OFFSET COSTS OF DOING IT, FCC OFFICIALS AT THE ATLANTA FIELD OFFICE AND AT WASHINGTON SAID THEY COULD FIND NO SPECIFIC REGULATION WHICH PRECLUDED IT!** "Whether the FCC will close this loophole in not known." (Westlink Report, 06/13/86.)

**A VERY RESTRICTIVE ANTENNA ORDINANCE HAS BEEN REVISED TO BRING IT INTO LINE WITH THE TERMS OF THE FCC PREEMPTION ORDER, PRB-1, ON AMATEUR RADIO ANTENNAS, SUPPORT STRUCTURES AND STATIONS, BY THE CITY COUNCIL OF KIRKLAN, WA.,** as suggested by a consulting law firm. Before the May 19 change, antennas (structures) required prior approval at a public hearing, payment of a minimum $350 fee and issuance of a construction permit/variance. (Westlink Report, 06/13/86.)

**A REQUEST FOR 500kHz OF THE 220 MHz BAND TO PROVIDE READING**

**SERVICES TO THE VISUALLY IMPAIRED HAS BEEN ASSIGNED RM-5434,** which was to be used for reference by those filing comments with the FCC on the petition. The deadline for comment was specified as June 22. FCC's Office of Engineering and Technology has responsibility for frequency allocation rule making. The Association of Radio Reading Services, Inc., which provides their service via subcarriers of FM broadcast stations filed the request on the grounds that FM broadcast subcarriers are becoming unavailable to them. (Worldradio Report, 06/13/86.) At its June 13-14 meeting, the ARRL Executive Committee directed the ARRL General Counsel to file comments in opposition to RM-5434.

**RESPONSIBILITY FOR INITIAL PUNISHMENT OF AMATEURS CAUSING RULES VIOLATIONS, SUCH AS MALICIOUS INTERFERENCE, HAS BEEN SHIFTED TO FCC'S FIELD OPERATIONS BUREAU WHICH WILL ASSESS SIZABLE FINES FOR SUCH VIOLATIONS.** Repetitive violations, such as continued incidents of malicious interference, will result in proceedings by the Private Radio Bureau to revoke the license of the violator. As a result, the Private Radio Bureau's Compliance Branch was eliminated effective July 1, 1986. (W5YI Report, 06/15/86.) The former head of the Branch, Ms. Carol F. Foelak, is now engaged in the FCC's preparation for participation in the next World Administrative Radio Conference.

**THE ARRL COMMENTS FILED IN PR DOCKET 86-161 WILL SUPPORT THE ENHANCEMENT OF NOVICE OPERATING PRIVILEGES** as directed by the ARRL Executive Committee at its June 13-14 meeting. "The comments will argue that Novice Privileges in the 220-MHz band are an intra-service matter an not effected by the moratorium on new allocations to the band. "The comments would also urge the Commission that Novice examinations be supervised by two volunteer examiners rather than one, as stated in the original ARRL Petition for Rule making." (ARRL Letter, 06/20/86.) See last month's FCC NEWS for the proposed new Novice-Technician privileges. The comment deadlines for this proceeding were 07/16/86 for originals and 08/20/86 for replies.

**"AMATEUR RADIO IS NOT TO BE USED FOR ROUTINE FUNCTION OF THE WEATHER SERVICE."** This statement is attributed to FCC's Raymond A. Kowalski, Chief of its Special Services Division and was reported in the 06/15/86 issue of the W5YI Report. He further advised that "Reporting routine weather by phone is consistent with the policy." I am assured by Mr. Kowalski that his "by phone" means by wireline telephone.

See last month's FCC NEWS paragraph advising that transmitting routine weather reports to a TV reporter via Amateur radio stations is in violation of FCC rule Section 97.110.

**AN ORGANIZED "HAMWATCH" USING LOS ANGELES RADIO AMATEURS TO SPOT AND REPORT CAR BREAK-IN THEFTS VIA THEIR PORTABLE AND MOBILE STATIONS WAS DEPICTED IN A NBC "TODAY" SHOW PROGRAM ON THE SUBJECT AT 8:12 AM EDT ON JUNE 26.** Section 97.3(w) of the Amateur Radio Service Rules defines: "Emergency Communication." "Any amateur radio communication directly relating to the immediate safety of life or individuals or the immediate protection of property." "Section 97.110 Business communications prohibited." states that "The transmission of business communications by an amateur radio station is prohibited except for emergency communications (See 97.3(w))."

**SOME COMMENTS ON THE LICENSE FEE PROGRAM NOT BEING APPLIED TO AMATEUR RADIO LICENSES SAY THAT FCC OUGHT TO HAVE FEES SO THAT IT "...CAN HAVE A REAL STRONG ENFORCEMENT PROGRAM."** What they don't understand is that the fees don't go to the Commission to spend on the service that collected them, but rather they simply go into the General Treasury." (W5YI Report, 06/15/86 quoting Ray Kowalski, Chief, Special Services Division, FCC, Washington.)

**A REQUEST BY THE LICENSEE OF K1MAN TO HAVE HIS STATION POWER LEVEL CASE AGAINST THE FCC REGULATIONS HEARD BY THE SUPREME COURT HAS BEEN DENIED.** Two justices felt that the hearing ought to be denied "...not on the grounds that he ought to be allowed to proceed without conforming to the Court's procedures - but rather that they felt it was s pointless discussion because they knew full well that the Court was not going to grant a petition to have his case heard." (W5YI Report, 06/15/86.) Baster (K1MAN) argues that FCC wrongly went to PEP output power rather than DC input power limits and that maximum permissible AM power was thereby greatly reduced.

**FCC'S FORT LAUDERDALE, FL MONITORING STATION IS BEING MOVED BECAUSE THE PRESENT SITE IS NO LONGER SUITABLE DUE TO UNACCEPTABLE LEVELS OF RF INTERFERENCE AT THAT LOCATION.**

**THE ELECTRONIC COMMUNICATIONS PRIVACY ACT REPORTED AS H.R.3378 IN LAST MONTH'S HIGHLIGHTS HAS BEEN REDESIGNATED AS H.R.4952.** "Although amateur radio is specifically exempted from the Act, the legislation still makes it a crime to monitor certain portions of the radio spectrum. It has strong support of certain segments of industry .. particularly those firms associated with the cellular telephone business." (W5YI Report, 06/15/86.)

**ON JUNE 6 FCC CHAIRMAN MARK FOWLER WAS RENOMINATED BY PRESIDENT REAGAN FOR THE $73K, 5-YEAR POSITION.** Fowler released a statement indicating his gratitude and acceptance but that he probably won't stay the whole term. The Senate has to vote approval. No date for the vote has been set. However, he may serve without reconfirmation through December 1987.

**ON JUNE 25 PATRICIA DIAZ DENNIS WAS SWORN IN AS A NEW FCC COMMISSIONER.** A member of the National Labor Relations Board, she fills the vacancy left by the departure of former commissioner Henry Rivera. This brings the Commission up to its full allowable membership of five people. Recently FCC commissioner terms were reduced from seven to five years which gets the terms in step with the current FCC five commissioner limit.

**ON JUNE 6, FCC'S SAN DIEGO OFFICE MOVED TO:** 4542 Ruffner Street, Room 379, San Diego, CA 92111-2216, Telephone # 619-293-5478.

**IN ANSWER TO SEVERAL INQUIRIES: YES, K6KPS WAS INDEED FINED $2000 FOR VIOLATION OF SECTION 97.113 "BROADCASTING PROHIBITED."** He has been paying it in $200 installments and had paid up $1000 at the time this issue of FCC NEWS was written. Section 97.113(d) lists four types of permissible one-way transmissions which "...are not considered broadcasting:" Brantly's typical one-way's were: Calling CQ and calling nonexistent stations, both for long periods of time. Such operations are not included in the permissible list.

| END-OF-MONTH LICENSE TOTALS | | |
|---|---|---|
| APRIL | 1986 | MAY |
| 39,405 | EXTRA | 39,463 |
| 98,237 | ADVANCED | 97,856 |
| 116,947 | GENERAL | 116,460 |
| 85,022 | TECHNICIAN | 84,659 |
| 79,306 | NOVICE | 78,729 |
| 418,917 | TOTALS | 417,167 |

(W4GF)

W1AW VANDALIZED

The antenna farm at ARRL Headquarters in Newington, Connecticut has been vandalized. The W1AW rhombic antenna incurred extensive damage over the Memorial Day weekend when vandals loosend the turnbuckles that support a 50 foot tower. The remainder of the antenna has since been taken down,and ARRL officials are now deciding whether to put it back up or replace it entirely. New protection against future vandalism is expected to be implemented by the Headquarters staff effective immediately.

(WESTLINK REPORT)

1050 CHUM TOWER VANDALIZED

A 100 foot tower atop of the 1050 CHUM radio station in Toronto has been vandalized. Two men, about 24 year old, were seen cutting the guy wires which supported the tower structure. Fortunately, nobody was hurt as it happened at about 5 a.m. The tower came crashing down and just missed a Ferrari sports car in the showroom at the car dealership across the street. This tower supported microwave link antennas.

(VE3BMV)

WANTED!

RADIOSPORTING is looking for articles, pictures and news items. Also needed are column leaders for the following departments: DX Monoband Reports, IRSA Awards, IRSA Contests, Satellite, Computer Hardware/Software, SWL, Contest Results and Records, etc.

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**BIBLIOGRAPHY "From Beverages to Oscar"** with addendum up to 1981 is still available. It list all the articles published on various subjects in major magazines. Article titles are sorted and listed by subjects. Set for $ 39.99 postpaid.
Rich Rosen, K2RR, 626 Hurricane Hill Rd., Mason, NH 03048

**BACK ISSUES OF RADIOSPORTING** are still available 1984: DEC, 1985: FEB, MAR, APR, MAY/JUN, JUL, AUG, SEP, OCT, NOV, DEC, 1986: JAN, FEB, MAR, APR, MAY, JUN, JUL. Price includes mailing, cost $2 per issue. Complete your collection. Also reprints of articles are available for 20 cents per page plus postage. RADIOSPORTING, PO Box 282, Pine Brook, NJ 07058

**BEAM HEADINGS** over 450 DX and US listings. Customized to your QTH. Long and Short Path headings. Bound. $ 4.95
Barry Ford, NC2V, 194A Groff Road, Monroeville, NJ 08343

**WANTED - DRAKE FS4** Frequency Synthesizer. Good price paid. J.Beal, VE3LXZ, 2 Mowat Ave., Apt 1204, Kingston, ON K7M 1K1. Tel. (613) 544-6898

**PRO-SEARCH PSE-1 DELUXE** (10 memories) digital antenna rotator control, for any HAM series rotator, perfect condition. Cost $300, sell for $175, free shipping. Bill, AA4M/6, 3042 Larkin Pl., San Diego, CA 92123, (619) 292 7227

**WANTED HALLICRAFTERS TV,** must be a table model that looks good and works properly. Malcolm Ringel, WN4KWD, 305 Buckhead Ave., Atlanta, GA 30305. (404) 231-0084 (work).

**160 METER ANTENNA** only 60 ft. long. The Sultronic's Triband Sloper is a great DX antenna covering 160-80-40 meters using inductors (NO TRAPS) to shorten the antenna. Attaches to grounded tower or mast. Insulated installations require dropping a ground wire. Worldwide DX with a low angle radiator!! Cost $39.95 ppd in US. Add $5 for Canadian shipping. US dollars only. Visa, MC, check or money order. Write for full specifications. Order from Sultronics, 1587 US 68 North, Xenia, OH 45385. (513) 376-2700.

**WANTED** - Hy-Gain Th3jr. Tri-band antenna with BAD traps or NO traps. Most any condition will be fine. WB4ZNH, Carl Henson C/B o.k. from 1973.

**WANTED** RF transformer by Palomar Engineers. Matches 50 Ohm to 32, 28, 22, 18, 12, rated 1 kW. For use at base of vertical. Charles Jackson, SV$AA, Box 722R, APO, NY, 09223-5362

**EPSON HI-80** plotter with spare pens, Keychart program and optional RS-232 interface US $590. VE3BMV/W2, PO Box 282, Pine Brook, NJ 07058

**WANTED** pair of 6JS6C finals and 12BY7A driver tubes for FT101E. Dennis, N7CKD, (206) 833-7243

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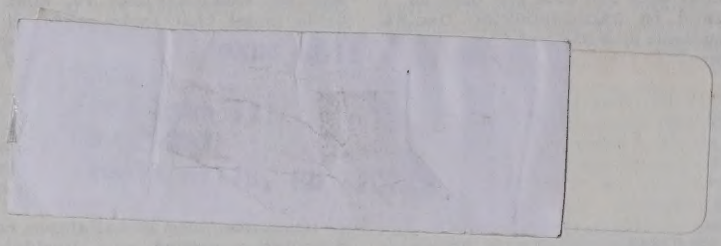

VE3BMV RADIOTORIAL..... 4
DX NEWS, N2AU..... 5
TOP BAND NEWS, N7CKD..... 7
160 M BULLETIN, LZ2CJ..... 10
80 m DXing, ON4UN..... 11
FOR LITTLE PISTOLS, WB9TBU, KB2OR..... 12
CONTEST RULES, W1WY..... 14
NEW PRODUCTS, CUSHCRAFT, NAVAL..... 16
THE IRSA WRC CONTEST, VE3BMV..... 17
WRC CONTEST RULES..... 19
WRC CONTEST LOG FORM..... 20
WRC CONTEST SUMMARY SHEET..... 21
WRC CONTEST MULTIPLIER SHEET..... 22
SECRETS OF LOW BAND OPERATION, K2RR..... 23
1986 WPX SSB HIGH CLAIMED SCORES, N8BJQ..... 32
PROPAGATION REPORT, KH6BZF..... 33
TRAFFIC, EMERGENCY, K4ZN..... 35
W5LFL QUITS NASA..... 36
FCC NEWS, W4GF..... 37
CLASSIFIED ADS..... 39

# CRRL CAN-AM CONTEST

PHONE: Sept. 20, 1986 0000 - 2400 GMT
CW: Sept. 21, 1986 0000 - 2400 GMT

OBJECTIVE: Sponsored by the Ontario Contest Club and Canadian Radio Relay League to increase the friendship among Canadian and American Amateurs and to provide a means of measuring the operating skills and equipment performance.

CATEGORIES OF COMPETITION:

1. SINGLE OPERATOR - All Band, Single band and QRP: only stations operated by the station licensee.

2. MULTIOPERATOR, single transmitter: stations operated by more than one operator or a single operator other than the licensee, or a club stations.

MULTIOPERATOR stations can operate full 24 hour period. SINGLE OPERATOR stations can operate maximum 20 hours with one or two rest periods totaling minimum four hours. The rest periods must be clearly marked in the log. Any further rest periods do not need to be logged.

BANDS: 1.8, 3.5, 7, 14, 21, and 28 MHz bands are permitted, US General portion of the bands is recommended for use.

NUMBER EXCHANGE: Signal report: use RS on phone and RST on CW, plus sequential QSO number starting with 001, plus multiplier area (MX) abbreviation, in that order: i.e. 59001CT, 599021NY. Multiplier area abbreviations are the usual two letter postal abbreviations for 50 US states, CN-for Caribbean (KC4, KG4, KP1, KP2, KP4, KS4, KV4 and their A-, N-, and W-, prefix equivalents), PC - for Pacific (rest of US possessions and Antarctica). Canadians will use: NL - VO1, VO2; NB - VE1 New Brunswick; NS - Nova Scotia; PE - Prince Edward Isl.; SI - Sable and St. Paul Isl.; PQ - VE2; ON - VE3; MB - VE4; SK - VE5; AT - VE6; BC - VE7; NW - VE8; YT - VY1 Yukon.

MULTIPLIERS: 50 US states, 2 US possessions (Caribbean, Pacific), 10 Canadian provinces, 2 territories (NWT, YT), 1 Islands (Sable, St. Paul). Total is 65 multipliers per band; maximum possible on all 6 bands is 390.

POINTS: 1. American to American, Canadian to Canadian contacts count for 2 points.

2. American to Canadian (and vice versa) contacts count for 3 points.

The same station may be contacted once on each band and mode.

SCORING: The final score is the sum of the total QSO points from all bands, multiplied by the sum of the multipliers from all bands. Phone and CW sections of the contest are considered separate contests. However, combined score for phone and CW will be used for overall competition. Combined score will be calculated by the contest committee as a result of the addition of phone and CW scores.

AWARDS: Handsome certificates will be awarded in each multiplier area on both modes in single operator categories. Top five multioperator stations in each country will receive certificates for high combined phone and CW scores. Where appropriate, the Contest Committee will award additional awards. All scores will be published in QST Magazine.

TROPHIES: Single operator, Combined -
Canadian Champion, ARRL Trophy
American Champion, CRRL Trophy
Multioperator, Combined -
Canadian Champion, Albuquerque DX Assn. Trophy
American Champion, IRSA Trophy

The trophies will be awarded at the Dayton Hamvention.

LOG INSTRUCTIONS: All times must be kept in GMT. Indicate multipliers the first time only on each band. Log must be checked for duplicate contacts, correct QSO points and multipliers. Do not use separate logs for each band. Rest periods must be clearly marked in the log. Each entry will consist of log sheets, summary sheets and signed declaration. Entries over 200 QSOs must include check sheets for each band. Official log, check sheets and summary sheets with multiplier tables are available from the Contest Chairman. A large SASE with Canadian stamps (or US stamps not glued to the envelope) will bring samples. Contestants are encouraged to use them as they greatly help with processing of entries.

SINGLE BAND: Any band can be selected for the single band category. All single band entries will be judged in one category. It is up to the contestant to select the band that can bring him or her the highest score.

QRP: A maximum of 10 watts input is allowed for use during the duration of the contest.

DISQUALIFICATION: Violation of national amateur radio regulations or rules of the contest, unsportsmanlike conduct, poor signal quality, taking credit for excessive (more than 2%) duplicate contacts or unverifiable QSOs or multipliers will be deemed sufficient cause for disqualification. Each incorrectly logged call or exchange will cause the contact to be deleted from the log. Actions and decisions of the CAN-AM Contest Committee are official and final.

DEADLINE: All entries must be postmarked not later than 30 days after the contest and mailed to: CRRL CAN-AM Contest, VE3BMV/W2
PO Box 282, Pine Brook, NJ 07058

## RADIOSPORTING

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*BY AND FOR ACTIVE RADIOAMATEURS*

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